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Henderson's Farmers Manual 1919.

PETER HENDERSON & CO.

35 and 37 CORTLANDT STREET, NEW YORK

HENDERSON'S TESTED FARM SEEDS

"GRASS IS KING"

GOOD GRASS IS THE FOUNDATION OF AGRICULTURE

"NO GRASS, NO CATTLE; NO CATTLE, NO MANURE; NO MANURE, NO CROPS!"—Old Proverb

There is no more profitable part of a farm than a good pasture. Pasture forms the cheapest possible food for all stock. Many thousands of acres have been seeded down with Henderson's famous pasture grass mixtures and make a handsome yearly return with a minimum of labor. But it is important that a pasture should be really permanent, and furnish food from early spring to winter. Much land is still seeded with Timothy and Clover, both short-lived plants, which soon die out and are replaced with weeds.

Our mixtures are the result of years of careful experimentation and trial, and are formed of long-lived grasses that flourish at different seasons of the year, thus maintaining an abundant and continuous bite from early spring until frost. Pastures seeded with them are always fresh and green during hot, dry summers when Timothy and Clover are burned brown. The initial cost of seeding with these mixtures is more,

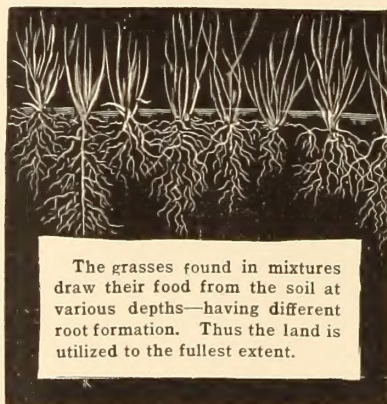
but an acre of Henderson's Special Grass Seed Mixture for Permanent Hay will yield double the quantity of hay, that an acre of Timothy and Clover will, and more than that, the yield is maintained for twenty years and more. There is no doubt that seeding with these mixtures is a satisfactory and paying investment.

Another great advantage in sowing grass seed mixtures is that full use is made of the land. The various grasses being of different habit, seek the food they require at unequal depths in the soil, some being shallow-rooted in habit and some deep-rooted; thus every strata of soil is utilized, and a far greater number of plants grow and flourish in a given space. We have been for years well aware of the above facts, through our own exhaustive experiments and studies, and no better meadows or pastures can be found than those laid down with our various grass seed mixtures. They comprise the following:

HENDERSON'S
SPECIAL GRASS MIXTURE
FOR HAY AND PERMANENT
PASTURE COMBINED

HENDERSON'S
SPECIAL GRASS MIXTURE
FOR PERMANENT PASTURE

HENDERSON'S
SPECIAL GRASS MIXTURE
FOR PERMANENT HAY



The grasses found in mixtures draw their food from the soil at various depths—having different root formation. Thus the land is utilized to the fullest extent.

HENDERSON'S
RENOVATING MIXTURE
FOR IMPROVING OLD PAS-
TURES

HENDERSON'S
SPECIAL GRASS MIXTURE
FOR WOODLAND PASTURES
FULLY DESCRIBED ON PAGES
1 AND 2

A Description of Soil and Locality should be given when ordering. In the preparation of these mixtures for permanent pasture, the greatest care is exercised in selecting such varieties as are suited to the soil to be sown and are likely to realize the object in view. To facilitate

this, a description of the soil and climate, and the purpose for which sown, and if with or without a grain crop, should accompany each order.

Samples of Our Grass Seeds will be forwarded to prospective customers, with percentage of germination as shown by our tests.

BUSINESS RULES

PRICES OF ALL FARM SEED ARE SUBJECT TO CHANGE WITHOUT NOTICE

PETER HENDERSON & Co. give no warranty, express or implied, as to description, quality, productiveness, or any other matter of any Seeds they send out and they will not be in any way responsible for the crop. If the purchaser does not accept the goods on these terms, they are at once to be returned.

ACCOUNTS.—Parties having no account, with us—who order goods without remittance—must furnish satisfactory reference. New York City reference preferred on account of the shorter delay pending investigation.

ABOUT FORWARDING AND REMITTING.—Remittances should be made either in the form of a P. O. Money Order, Express Money Order, Bank Draft, Express Purchasing Order or Registered Letter.

WHEN SHIPPED BY FREIGHT WE DELIVER POTATOES in good condition, into the hands of transportation companies; our responsibility ceases there. Consignee then assumes all risks of heating, freezing and delays.

Farm seeds we do not deliver free—consignee pays the transportation charges. In the event of small quantities being wanted by mail, add postage according to Zone rates in next column.

WE MAKE NO CHARGE FOR PACKING, except special for foreign shipments, as tin-lined cases, double sacks, etc., then we charge cost. Cloth bags we charge for, viz.: ½ peck, 15c.; 1 peck, 25c.; ½ bushel, 35c.; 1 bushel, 45c.; 2 bushels, 70c. Burlap bags, 1 peck, 15c.; ½ bushel, 20c.; 1 bushel, 25c.; 2 bushels, 35c.; 4 bushels, 55c.; 6 bushels, 75c.; 8 bushels, 90c.

FARM MANAGERS—We have always on hand applications by competent men for positions as farm and estate managers, men who have been trained in the business and are well posted on agriculture generally, also the raising and care of all kinds of live stock. We will be very pleased to enter into correspondence with those who require the services of such. We make no charge for this to employer or employee.

SPECIAL PACKING FOR FOREIGN SHIPMENTS, in tin-lined cases or double sacks charged at cost.

DOMESTIC PARCEL POST RATES				First	Each
Within the U. S. and Possessions				Pound	Additional
1st & 2d Zones weight limit 70 lbs., other Zones 50 lbs.				(over 8 oz.	Pound
Size limit 84 inches for combined length and largest girth				rates 1 lb.)	or fraction
First	Zone within	50	miles of New York City	5c.	1c.
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Third	"	150 " 300	"	6c.	2c.
Fourth	"	300 " 600	"	7c.	4c.
Fifth	"	600 " 1000	"	8c.	6c.
Sixth	"	1000 " 1400	"	9c.	8c.
Seventh	"	1400 " 1800	"	11c.	10c.
Eighth	"	all over 1800	"	12c.	12c.

PRICES in this catalogue are subject to market fluctuations.

SPECIAL QUOTATIONS given on larger quantities than offered herein.

THIS CATALOGUE CANCELS ALL PREVIOUS QUOTATIONS

PETER HENDERSON & Co.
35 & 37 CORTLANDT STREET
NEW YORK

FOR INDEX AND QUANTITY OF SEED TO SOW PER ACRE, SEE PAGE 3 OF COVER

ORDER SHEET FOR FARM SEEDS

PETER HENDERSON & CO. give no warranty, express or implied, as to description, quality, productiveness, or any other matter of any Seeds, Roots, Etc. they send out; and they will not be in any way responsible for the crop. If the purchaser does not accept the goods on these terms, they are at once to be returned.

Peter Henderson & Co.
35 and 37 Cortlandt Street, New York

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(Only if different from P. O.)

Superintendent or Farm Manager:

(That we may register for Catalogues.)

Date..... 1919

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We make no charge for packing or cartage of goods to any railroad station, steamship line or express office in New York City. Farm seeds we do not deliver free—consignee pays the transportation charges. In the event of small quantities being wanted by mail postage should be added according to Zone rates printed on page 2 of cover.

WE MAKE NO CHARGE FOR PACKING, except special for foreign shipments, as tin-lined cases, double sacks, etc., then we charge cost. Cloth bags we charge for, viz.: $\frac{1}{2}$ peck, 15c.; 1 peck, 25c.; $\frac{1}{2}$ bushel, 35c.; 1 bushel, 45c.; 2 bushels, 70c. Burlap bags, 1 peck, 15c.; $\frac{1}{2}$ bushel, 20c.; 1 bushel, 25c.; 2 bushels, 35c.; 4 bushels, 55c.; 6 bushels, 70c.; 8 bushels, 90c.

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Route shipped by _____, Date shipped _____ 1919.

In _____ Pkgs.; _____ Bundles; _____ Boxes; _____ Crates; _____ Baskets; _____ Bbls.; _____ Bags.

The following articles will be sent later _____

Laid out by _____; Checked by _____; Reply required by _____

QUANTITY

ARTICLES

PRICE

Amount brought forward,

HENDERSON'S
SPECIAL



GRASS
MIXTURE FOR HAY



AND
PERMANENT
PASTURE

Henderson's Special Grass Seed Mixture FOR HAY AND PERMANENT PASTURE

It Produces Wonderful Hay Crops and Luxuriant Pasture
Maintaining Its Cropping Qualities Twenty Years or More.

This famous mixture has seeded thousands of acres of meadow and pasture land for progressive farmers and stock raisers in various parts of the United States, with most gratifying results. It is a well-balanced combination of a number of native and acclimated foreign Grasses and Clovers, blended and improved upon during exhaustive trials under widely varied conditions, soils and localities for several years, until practically perfect, our aim being to produce, under the extremes of the American climate of heat, drought and cold, a PERMANENT, dense and deep-rooting turf that would yield year after year the maximum quantity of forage. These Grasses are of superior quality, inviting sweet and nourishing, whether used as hay or pasture. We have received numerous letters of praise for these special Grass mixtures from the users, and tributes to their merits have been published in many of the agricultural journals.

The Initial Cost is More in seeding with Henderson's Special Grass Mixture, but the ultimate returns are much more profitable than those from ordinary hay and pasture fields, and when the other advantages are considered—including the permanency of a maintained yield—the first expense will be found a paying and satisfactory investment.

In preparing these mixtures the greatest care is exercised in selecting such varieties as are suited to the soil to be sown and are likely to realize the object in view. Therefore a description of the soil and climate, and the purpose for which sown, and if with or without a grain crop, should accompany each order. State whether wanted for light, medium or heavy soils. Sow 40 lbs. per acre.

Full directions for sowing enclosed in every bag.

Price 35c. per lb., \$3.25 per 10 lbs.; \$30.00 per 100 lbs.

Henderson's Special Grass Mixture FOR PERMANENT PASTURE

Supplies Continuous and Abundant Pasturage for Twenty Years or More, Remains Green and Succulent All Summer Long, When Ordinary Grazing Lands Are Burned Brown

There is no more important part of a farm than a good pasture, and that can only be obtained by the use of the proper Grasses, varieties that have different root formations and different habits and season of growth, in order to maintain a rich, close turf throughout the entire season. Timothy should never be used for pasture, because it will not stand trampling, and soon runs out when heavily pastured and at best is short-lived, as compared with the permanent Grasses used in our Special Mixtures. These Mixtures contain over a dozen of the best permanent Grasses, both American-grown and imported. All are permanent, and when once established will last indefinitely, if the fertility of the soil is kept up by occasional top-dressing. Owing to the different habits of growth, the Grasses grow closer together and form a rich, close turf, covering the soil completely and forming a protection to the roots during hot, dry weather, thereby enabling these Grasses to maintain a rich green appearance when Timothy and other Grasses are burned up. The thick turf also prevents animals poaching through and destroying the pasture.

We have for years studied the subject of pastures and their formation with exhaustive tests on our own trial farms, where we have had growing separately and in different Mixtures all the Grasses of which seed can be procured in commercial quantities. These trials have been broadly studied and the results watched with critical interest on the farms of our customers. We are in an unvalued position to advise you on the subject and to supply suitable Grass seeds for Permanent Pasture. While it costs a little more to seed an acre with this Special Mixture, yet results are so superior and permanent that they more than offset the original cost. Sow not less than 40 lbs. per acre. State whether wanted for light, medium or heavy soils. Directions enclosed in every bag.

Price, 35c. per lb.; \$3.25 per 10 lbs.; \$30.00 per 100 lbs.

Mixed Clovers, 5 lbs. sufficient to renovate an acre. Price, 65c. lb.; \$6.25 10 lbs.; \$60.00 100 lbs. See page 2



HENDERSON'S SPECIAL GRASS MIXTURE FOR PERMANENT HAY

Supplies a Good Crop of Hay in Dry Seasons when ordinary Hayfields are Burned Up.

Although the most widely cultivated hay grass in the United States is Timothy, or a mixture of Timothy and Clover, and while they answer the purpose admirably on farms where the soil is suitable and where the usual three and four years' rotation is carried on, yet there are many other grasses which will yield more profitable returns.

An acre of Henderson's Special Grass Mixture for Permanent Hay will yield double the quantity of an acre of Timothy and Clover, and the farmer whose land is sown with a proper mixture of Permanent Grasses, requiring only an occasional top-dressing of manure or fertilizer to maintain their heavy cropping qualities for twenty years or more, avoids the expense of the yearly plowing and cultivating, necessary in rotation cropping.

Hay yields very profitable annual returns at a minimum of labor and expense. The seed of these Permanent Grasses is more costly than Timothy, and more is required per acre, but by reason of their heavy cropping qualities and permanency they soon repay the extra cost and leave a handsome margin for the farmer, when the cost of plowing, harrowing and re-seeding Timothy every three and four years is taken into consideration.

The grasses used in this Mixture recover quickly after the hay crop is cut, and yield either a second crop or pasture in the greatest abundance during the summer and fall months. Within a few days after cutting, their rich green appearance as compared with Timothy is a desirable feature, especially in fields close to the house, as it gives a park-lawn effect to the surroundings. Sow 40 lbs. per acre, directions in every bag.

Price, 35c. per lb.; 10 lbs., \$3.25; 100 lbs., \$30.00. (State whether wanted for light, medium or heavy soils.)

HENDERSON'S RENOVATING MIXTURE FOR IMPROVING OLD PASTURES

Grass lands, in consequence of being constantly mown or pastured without being fertilized or manured, frequently become impoverished and deficient in the more valuable and nutritious grasses, and in time become unprofitable. It is frequently unnecessary to plow up such land unless it be full of weeds. The turf should be well harrowed with a sharp-tooth harrow, and, if possible, top-dressed with soil and well-rotted stable manure, which should be well harrowed in, and then sown with Henderson's Renovating Mixture, at the rate of 15 lbs. per acre, and five pounds of mixed clovers. This mixture is composed of those sorts that are best suited for sowing on old pastures or meadows, and it will speedily improve the quality and increase the produce. March and April are the best months for sowing, choosing an interval between rains if possible, though if inconvenient to sow, then, very satisfactory results can be obtained by fall sowing. After sowing, the ground should be lightly harrowed and afterward well rolled.

Price, 35c. lb.; 10 lbs. \$3.25; 100 lbs. \$30.00.

HENDERSON'S SPECIAL MIXTURE FOR WOODLAND PASTURES

Unless there is a superabundance of nitrogen in the soil and a consequent excessive wood growth, in which case it is desirable to sow the land with grasses, it is now customary to sow orchards with cover crops, such as Cow Peas, Clover, etc. These are plowed under and the orchard kept in constant cultivation. But where it is desired to sow the orchard with grass, or for woodland pastures, even when the shade is comparatively dense, we can with all confidence recommend this mixture.

It is composed of a selection of grasses which from exhaustive experiments we have found will thrive under trees. Orchard Grass is, of course, one of the best grasses for the purpose, but this mixture is much superior, as it will make a closer and more even pasture than Orchard Grass alone. Sow 40 lbs. per acre.

Price, 35c. per lb.; 10 lbs., \$3.25; 100 lbs., \$30.00.

"Years ago my father seeded a piece of land with Henderson's Mixture for Permanent Hay, which I remember was ordered from you. The fields are still yielding excellent returns from that seeding, so desire to seed other fields at once."

Miss MARY T. RANDALL, Pittsford, Vermont.

REGARDING MIXED CLOVERS

Do not omit to sow Clovers with the Grasses, as they add to the yield of hay and pasture, and by their ability to collect atmospheric nitrogen and store it in the root nodules, assist the growth of the Grasses and are of considerable benefit to subsequent crops.

Mixed Permanent Clovers, on account of their greater weight, should be sown separately, but at the same time as the Grasses. This Mixed Clover comprises White, Mammoth Perennial or Cow Grass, Alsike, etc. Sow 10 pounds per acre.

Price, 65c. per lb.; 10 lbs., \$6.25; 100 lbs., \$60.00.

"I sowed some of Henderson's Special Grass Seed Mixtures two years ago, and as it did so well, I wish to lay down another piece."

THEODORE B. BAILEY, Wilton, Conn.

"Our twenty year old grass field is a wonder. It was up to the cow's shoulders last year, notwithstanding all the dry weather we had."

JOSEPH F. STRONG, Millstone, N. J.

"Please send me by express immediately nine bushels of Henderson's Special Grass Seed Mixture for permanent pasture. The last lot I got from you did fine."

JOHN M. DENNIS, Lutherville, Md.

"A few years ago I sowed some of your Special Grass Seed Mixture, and it did so well, I want about nine bushels for my clearing."

JAMES W. BURNIS, Delta, Pa.

NATIVE AND FOREIGN GRASSES

Suited to All Soils and Climatic Conditions in the United States

In the following list we offer choice, re-cleaned seeds of imported and native grasses suited to the widely varied climatic conditions of this continent.

While the various mixtures of grasses made up by us, fully described and illustrated on pages 1 and 2, cover the general needs of the American farmer for permanent pasture, and permanent hay, yet sometimes conditions are such, that it is necessary to grow some special grass, or combination of grasses to meet them. For instance, in sections where the rainfall is very light, or in hot Southern climates it is advisable to grow such drought-resisting grasses as Awnless Brome Grass first introduced into this country in 1889 by us; or Johnson Grass and Bermuda Grass which succeed admirably in such latitudes. (See page 3.)

Then again, there are special soil conditions which have to be met by prescribing suitable combinations of grasses. We are prepared at all times to make up special mixtures for such particular purposes; and all correspondence relating to such matters will receive our prompt attention. Customers writing us should send a description of soil and climate, and the purpose for which the crop is to be grown, and if it is intended to be sown with a grain crop or alone.

NOTES ON HAY CUTTING AND CURING—Timothy is at the best stage for cutting when all the bloom has dropped and about two-thirds of the heads are of a brown color. Hay made from Timothy cut at this time makes a more strength-giving and flesh-forming food than that made from Timothy cut at an earlier or later period. When green or immature grass is cut it will make beautiful green colored hay, but the chemical changes which take place result in hay having sour and bitter qualities, instead of a sweet taste which is natural when the Timothy is cut at the proper time. While the latter is brown, and may present a harsh, rough appearance, it is sweet to the taste, consumed freely by the stock and they gain strength and become fat. The stalks of green Timothy hay will be found black at the joints, and when chewed will be found bitter. It is more difficult to keep free from mold when stored than that made from properly-ripened grass.

Hay should not be exposed too long to the sun. Sweet-smelling, sweet-tasting hay carrying a large per cent. of the leaves of the original plant is best in quality and hay of this kind cannot be made, when the crop is cut and exposed to the hot sunshine for a long time. Some sunshine is helpful, of course, but in the production of first-class hay it is not necessary to allow it to be bleached and parched. Aside from the loss of aroma by long exposure to the sunshine a large per cent. of the leaves will shatter off in handling and thus be lost. And when the leaves are lost, hay of poor quality is the result, for it has been shown that a little more than three-fourths of the food nutrients of the entire plant is in the leaves.—From *Rural New Yorker*.

BENT CREEPING or FIORIN *Agrostis alba stolonifera*

(Marsh or Broad Leaved Bent)

Perennial. Time of flowering, July. Height, 1 to 2 feet. This grass is well adapted for moist situations, and valuable for affording herbage in early spring and late autumn, before other grasses have commenced or have stopped growing and in consequence is advantageously included in permanent pasture mixtures. It is also excellent for lawns. (See engraving.)

Sow (if alone) 2 bushels per acre. Weight, about 20 lbs. per bushel. Unprocurable at this time.

BENT RHODE ISLAND *Agrostis canina*

(Brown Bent or Dog's Bent)

Perennial. Time of flowering, June to July. Height, 1 to 2 feet.

Its hardy creeping habit renders it desirable for close sward, and it is found to be a very desirable sort in some some parts of the country for lawns. Sow (if alone) about 3 bushels per acre; weight, 14 lbs. per bushel. Price on application.

CANADA BLUE GRASS *Poa Compressa*

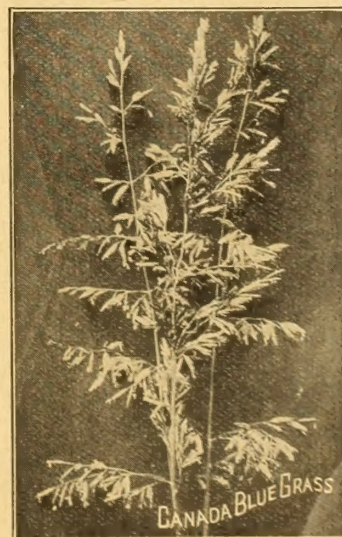
Perennial. Time of flowering, July. Height, 6 to 12 inches.

A valuable grass for hard, dry soils. It grows on land so poor and thin as to exclude the growth of other grasses. It is especially valuable for dairy pastures. Cows feeding on it yield the richest milk and finest butter. Being of an

rocky knolls and should form a portion of the mixed grasses for such soils; as it shrinks very little in drying, it makes heavy hay in proportion to its bulk. Sow (if alone), 3 bushels per acre. Weight of bushel, 14 lbs.

Price, 30c. per lb.; \$3.75 per bushel; \$25.00 per 100 lbs.

extensive creeping habit, it forms a strong turf. Not recommended for highly cultivated land, as it is liable to become troublesome owing to its creeping rootstocks. It is an exceedingly valuable pasture grass on dry,





KENTUCKY BLUE GRASS

Poa pratensis

Also called June Grass, Smooth Stalked Meadow Grass, Green Meadow Grass, and Spear Grass.

Perennial. Time of flowering, June. Height, 10 to 15 inches.

This valuable grass is suited to a variety of soils, from dry to moist. It is exceedingly popular as a pasture grass, very productive, unusually early, and presents a beautiful green appearance in early spring, while other grasses are yet dormant. It furnishes delicious food for all kinds of stock unless there should be a protracted drought, which would cause it to slowly dry up until the fall rains, when it springs forth and grows luxuriantly, furnishing pasture until frozen. It makes a splendid lawn

grass, forming a thick turf, and being of very even growth, producing only one flowering stem a year, while many grasses shoot up flower stalks throughout the season. Kentucky Blue Grass also makes hay of excellent quality, but the yield for this purpose is not equal to some other grasses. Sow (if alone) 3 bushels per acre. Though offered at the standard weight of 14 lbs. per bushel, we keep nothing but fancy re-cleaned seed, free from chaff, the natural weight of which is 20 to 25 lbs. per measured bushel.

Price, 45c. per lb.; \$6.00 per bushel of 14 lbs.; \$40.00 per 100 lbs.

CRESTED DOGSTAIL (Gold Grass) *Cynosurus cristatus*

Perennial. Time of flowering, July. Height, 1 to 1½ feet.

A fine, short grass, that should enter into all permanent pasture mixtures, especially for dry, hard soils and hills pastured with sheep. Sheepfed in pastures where this abounds are less subject to foot rot. It is tender and nutritious and relished by all stock until it commences to ripen; it then becomes wiry. On account of its close growing habit, the dense turf it produces and its evergreen foliage, it is particularly desirable for lawn mixtures. Sow (if alone) 1½ bushels per acre, weight about 21 lbs. per bushel. Price, 45c. per lb.; \$8.75 per bushel; \$40.00 per 100 lbs.

FESCUE CHEWING'S NEW ZEALAND *Festuca Chewing's*

Time of flowering, June. Height, 6 to 12 inches.

Owing to its durable and drought resisting qualities, it is invaluable for golf putting and fair greens, and is also well adapted for lawns. Sow (if alone) 2 bushels per acre. Weight per bushel 20 lbs.

Price, 65c. per lb.; \$12.50 per bushel; \$60.00 per 100 lbs.

FESCUE FINE LEAVED SHEEP'S *Festuca ovina tenuifolia*

Perennial. Time of flowering, June. Height varies from 8 to 24 inches.

This is similar to the Sheep's Fescue mentioned above, except that the leaves are much finer. Cattle are very fond of it, and it grows naturally in many parts of the world. In the northern districts of Great Britain it sometimes forms the whole food of the Highland cattle. It is very suitable for permanent pasture, especially on uplands and dry soils. Its rich, dark green gives a fine appearance to hay, and renders it also valuable for lawn mixtures for dry situations.

Sow (if alone) 3 bushels per acre; weight, about 14 lbs. per bushel. Price on application.

FESCUE HARD *Festuca duriuscula*

Perennial. Time of flowering, June. Height, 18 to 24 inches.

A dwarf growing, very hardy grass of great value, for permanent pastures. In hay its presence indicates superior quality, and after being mown it produces a very large quantity of food. It comes early, stands long droughts well; stock eat it with avidity, especially sheep. From the fineness of its foliage and its resistance to drought in summer and cold in winter, it is well adapted for lawn grass mixtures. It is somewhat inclined to stool, but when sown with other grasses, it will not show this characteristic. Sow (if alone) 2½ bushels per acre; weight, about 12 lbs. per bushel. Price on application.

FESCUE MEADOW (English Blue Grass or Sweet Grass)

Festuca pratensis

Perennial. Time of flowering, June and July. Height, 18 to 24 inches.

Very valuable for permanent pastures, highly nutritious, makes excellent hay and succeeds well in almost all soils, especially in moist land. It is robust in habit and never grows in tufts, although it should be sown with other grasses. It is one of the earliest grasses in the spring and one of the latest in autumn, being particularly valuable for fall and winter pastures. In the climate of Virginia it often remains green under the snow through the winter, hence called "Evergreen Grass." Sow (if alone) 2½ bushels per acre; weight, about 22 lbs. per bushel. Price, 55c. per lb.; \$11.25 per bushel; \$50.00 per 100 lbs.

FESCUE RED or CREEPING *Festuca rubra*

Perennial. Time of flowering, June and July. Height, 2 to 2½ feet.

This grass is of a remarkable creeping habit and endures severe droughts. Its roots penetrate so deeply into the soil that it remains fresh and green when other varieties are apparently dried up. It is particularly adapted for dry pastures by the seaside and on loose, light soils, the slopes of railroad cuts, etc., if dry. It yields an average bulk of herbage of fair quality, although most nutritious at time of flowering.

Sow (if alone) 2½ bushels per acre; weight about 14 lbs. per bushel.

Price, 65c. per lb.; \$8.75 per bushel; \$60.00 per 100 lbs.

FESCUE SHEEP'S GRASS *Festuca ovina*

Perennial. Time of flowering, June and July. Height varies from 6 to 20 inches.

For good upland or dry pastures, a large portion of this grass should be included in the mixture, especially if it is used for sheep grazing, as it is greatly relished by them. Its fine foliage and compact habit render it desirable for lawn mixtures. Sow (if alone) 2½ bushels per acre; weight about 12 lbs. per bushel. Price on application.

FESCUE TALL MEADOW *Festuca elatior*

Perennial. Time of flowering, June and July. Height, 3 to 4 feet.

A coarse growing grass, nevertheless it is very nutritive and productive, and is naturally adapted to moist, stiff or clayey soils and shady woods, and is considered by some authorities to be one of the best grasses in cultivation. It is greedily eaten by stock when green, and should be included in all permanent pasture mixtures for moist or strong lands. It also makes a very good quality of hay, but is too robust for lawn purposes. Sow (if alone) 2½ bushels per acre; weight about 14 lbs.

Price, 55c. per lb.; \$7.50 per bushel; \$50.00 per 100 lbs.

FESCUE VARIOUS LEAVED *Festuca heterophylla*

Perennial. Time of flowering, June and July. Height, 2½ to 3 feet.

A valuable grass for permanent pastures, especially on uplands, well adapted where a heavy swath is wanted. It yields a large bulk of herbage, but produces little feed after mowing. Its beautiful, dark green foliage renders it suitable for park mixtures. Sow (if alone) 3 bushels per acre, weight, about 14 lbs. per bushel. Price on application.

FOXTAIL MEADOW *Alopecurus pratensis*

Perennial. Time of flowering, May. Height, 2 to 3 feet.

It is particularly valuable in permanent pastures being rapid and early in growth and capable of enduring for many years. In appearance it much resembles Timothy but the plant is much smoother and softer. It comes into flower several weeks earlier and is also ready for grazing much sooner than Timothy is. Meadow Foxtail endures close cropping, hence is just the grass for sheep pasture, forms a luxuriant aftermath, and revives quickly after long droughts. Sow in the New England and Middle States as early in the spring as possible, so as to take advantage of all the moisture of the season. In the Southern States it may be sown as soon as the autumn rains begin.

Sow (if alone) 3 to 4 bushels per acre; weight, about 7 lbs. per bushel.

Price on application.



MEADOW GRASS ROUGH STALKED *Poa trivialis*

Perennial. Time of flowering, July. Height, 2 to 3 feet.

The Lombardy "Queen of Meadow" Grass. An excellent grass for good, deep, rich, moist meadows and stiff, heavy clays. It gives a constant supply of highly nutritive herbage, for which horses, sheep and cattle show a marked partiality. Sow (if alone) 1½ bushels to the acre; weight, about 14 lbs. per bushel. Price on application.

OAT GRASS, TALL MEADOW *Arrhenatherum avenaceum*

Perennial. Flowers in May and June. Height, 2 to 4 feet.

(The Avena Elatior of Linnæus) also known as Evergreen Grass, and French Rye Grass.

It is a valuable grass in permanent pastures because of the early and rapid growth it makes in the spring; and also because it produces a very thick aftermath after being mown. It is also highly recommended for soiling as it furnishes an abundant and early supply of fodder. It is a hardy grass and will thrive in widely different latitudes. Soils that are sandy in texture, but have enough loam to furnish food for the plants are the best for Tall Oat Grass, but it also grows well on light sandy soils, unless the climate is extremely dry. As Tall Oat Grass makes such a strong growth the first season, and maintains its hold upon the soil very well, it is adapted for use in either short or long rotations. Like all other grasses it is best sown on a clean soil, and when used in the rotation, should follow some cultivated crop; still it is better able to overcome weeds than many other grasses.

Sow (if alone) 4 to 5 bushels per acre; weight, about 10 lbs. per bushel. Price, 55c. per lb.; \$5.25 per bushel; \$50.00 per 100 lbs.

ORCHARD GRASS (Rough Cocksfoot) *Dactylis glomerata*

Perennial. Time of flowering, June. Height, 3 feet.

This is one of the most valuable and widely known of all the grasses, being of exceptional value in permanent pasture mixtures on account of its earliness and its rapidity of growth. After being mown it produces a luxuriant aftermath and is quick to recover from close cropping. "five or six days being sufficient to give a good bite." It is relished heartily by all kinds of stock, sheep even passing all other grasses to feed upon it. It succeeds on almost any soil, especially in moist shady places, and in porous subsoils its roots extend to a great depth. It stands drought well, keeping green and growing when other grasses are dried up. It flowers about the time of Red Clover and makes a splendid mixture with it to cut in blossom for hay, although it should be cut early or grazed close, as it becomes hard and wiry and loses its nutritious qualities, to a certain extent, when ripe. It should not be sown in mixture with Timothy, for, being three weeks earlier, it becomes pithy if allowed to stand until the Timothy is ready to cut. Cut at the proper time, however, there is no better or more succulent hay. It is inclined to grow in tufts, and should therefore have other grasses sown with it and be sown very evenly. Sow (if alone) 3 to 4 bushels per acre; weight, about 14 lbs. per bushel.

Price, Choice, Re-cleaned Seed, 55c. per lb.; \$7.50 per bushel; \$50.00 per 100 lbs.

RED TOP

Agrostis vulgaris

(Burden's Grass, Herd's Grass of the South, and in poor soils "Fine Top.")

Perennial. Time of flowering, July. Height, 1 to 2 feet.

Valuable either for mixing in hay or permanent pasture grasses; is common throughout the country; succeeds almost everywhere, but reaches its highest state of perfection in a moist, rich soil, in which it attains a height of 2 to 2½ feet. If for pasture it should be fed close as it is not relished after it grows up to seed. It is often sown with Timothy and Red Clover; the latter of course soon disappears, the Timothy follows; then the Red Top takes its place. We offer only one grade of Red Top, the finest fancy re-cleaned seed. (See engraving.)

Weight, 32 lbs. per bushel. Sow (if alone) 1 bushel per acre. Price, 30c. per lb.; \$8.50 per bushel of 32 lbs.; \$25.00 per 100 lbs.



RYE GRASS ENGLISH or PERENNIAL

Lolium perenne

Perennial. Time of flowering, June. Height, 15 to 24 inches. This grass is considered invaluable for permanent pastures. It produces an abundance of remarkably fine foliage, tillers out close to the ground and soon forms a compact sward. After being cut it grows up in a very short time and remains bright and green throughout the season; it consequently is well adapted for lawn mixtures. It is also a good variety for hay if cut when in blossom, as it is then most nutritious; if cut much later it becomes woody. It flourishes best in situations not too dry or subject to droughts. Sow (if alone) 2½ to 3 bushels per acre; weight per bushel, 24 lbs.

Price, (extra fine sample), 25c. per lb.; \$6.50 per bushel, \$25.00 per 100 lbs.

RYE GRASS ITALIAN *Lolium italicum*

Biennial. Time of flowering, June or July. Height, 18 to 30 inches.

A variety unequalled for producing an abundance of nutritious feed in the early spring. It gives quick and successive growths until late in the fall, even if cut several times providing the land is in good condition and not too dry. It thrives on almost any good soil, but reaches its most perfect state in moist, fertile land. As it is not perennial, it is not adapted for permanent pastures, but for one or two years' lay it is unsurpassed. Sow (if alone) 3 bushels per acre, weight, about 18 lbs. per bushel.

Price, 40c. per lb.; \$6.75 per bushel; \$35.00 per 100 lbs.

SWEET VERNAL (True Perennial)

Anthoxanthum odoratum

Perennial. Time of flowering, May and June. Height, 1 to 2 feet.

Very valuable on account of its delicious perfume, to which our hay field and pastures owe their fragrance. The odor is more distinguishable when the grass is drying or dried, and when included in hay its aroma is imparted to the other grasses, making it relished by the stock and enhancing the value of the hay. Sow (if alone) 3½ bushels per acre; weight, about 10 lbs. per bushel. Price on application.

TIMOTHY or HERD'S GRASS of the North

Phleum Pratense

Perennial. Time of flowering, June and July. Height, 2 to 3 feet.

This luxuriates in moist, loamy soils, and sometimes, in favorable situations, attains a height of 4 feet, and even on light soils it yields fair crops. It is exceedingly nutritious, particularly when ripe, but as it is then very hard and pithy, it is better to cut it soon after flowering. It then makes magnificent hay. On dry soils, Timothy forms a bulbous swelling at the base of the stems from which the next year's growth starts. It is, therefore highly injurious under such circumstances to pasture stock on the fall growth, as they trample and cut the leaves off that should protect it during the winter. Even in its most flourishing condition it is more or less injured by pasturing it. (See engraving.)

Sow (if alone) ½ to 1 bushel per acre; weight per bushel, 45 lbs.

Price, Henderson's Standard Sample, 22c. per lb.; \$9.00 per bushel; \$18.00 per 100 lbs. (Subject to change without notice.)



WOOD MEADOW GRASS *Poa nemoralis*

Perennial. Time of flowering, June. Height, 1½ to 2 feet.

This grass is now classed among our good "Shaded Pasture grasses" and furnishes a fine succulent and nutritive herbage which is very much relished by cattle. It is splendidly adapted for moist, shady places and should be included in all mixtures for permanent pastures and lawns for moist soils. It is particularly valuable for lawns over-shadowed by trees. Sow (if alone) 2 bushels per acre; weight per bushel, about 14 lbs. Price on application.

Drought Resisting Grasses Adapted to Southern Climates

AWNLESS BROME GRASS (BROMUS INERMIS)

This luxuriant drought-resisting, hardy perennial grass, introduced by us in 1889, has proven to be a most important and valuable hay and pasture grass, thriving under the trying conditions of the dry regions of the West and Northwest. It is very hardy, living through winters where the temperature falls many degrees below zero. It roots deeply, grows rapidly, in good soils attaining a height of 4 feet, yielding up to 4 tons of cured hay per acre. Even on very poor, sandy land it gives fair crops, having yielded 1 to 1½ tons per acre when Timothy was a failure. As a permanent pasture grass, for dry sections, it is very valuable, starting into growth very early in the spring, usually 3 to 4 weeks before other grasses; it forms tough, close turf, stands grazing and the trampling of stock, does not dry up in summer, remaining green until late in the fall. Stock relish it and thrive on it; experiment stations place its feeding value ahead of Timothy, though it does not equal Alfalfa as a milk and butter producer, but it is always safe to feed. Brome Grass is a splendid humus former and greatly improves the physical condition of the soil, the roots penetrating 4 to 6 feet deep. Sow the seed broadcast (20 to 25 lbs. per acre) in spring or early summer.

Price, 45c. per lb.; \$6.00 per bushel of 14 lbs.; \$40.00 per 100 lbs.

SUDAN GRASS or "GARAWI GRASS"

This valuable new forage plant was brought from the Soudan, Egypt, hence the name "Sudan Grass." Sudan Grass is strictly an annual, having no underground root-stocks to spread over the ground, which is a point very much in its favor because there is no danger of its getting out of bounds and becoming a pest. It is thoroughly killed by frost each year, and the seed must be sown again.

When broadcasted for hay it rarely attains a height of more than 4 or 5 feet. The stems are smaller and more leafy than Johnson Grass which it most resembles, and the hay is much softer. When broadcasted for hay, or as a catch crop for forage, the number of cuttings secured will depend on the length of the season and the amount of moisture. The first crop matures in from 50 to 75 days, and the recovery after cutting is so rapid that another cutting may be taken 25 to 35 days later. Sudan Grass will produce as much as any variety of Millet and yield two to four cuttings per year. Its great value to the farmer in the eastern part of the country, or in a droughty section is the ease with which it can be grown, and its profitable yields of forage. All stock eat it greedily, and no ill effects have been known to follow feeding it to working animals. Sow broadcast for hay or forage using 15 to 20 lbs. per acre.

Price, 35c. per lb.; \$8.00 per bushel of 25 lbs.; \$30.00 per 100 lbs.

BERMUDA GRASS (CYNODON DACTYLON)

This perennial grass, of low-creeping habit, is eminently adapted for the Southern States, as it withstands drought and the scorching rays of the sun better than any other variety. This grass is noted for the peculiar habit of its growth; the wiry roots of the grass in running over the surface of the ground form a strong, fibrous matting. For that reason it is sown largely for the purpose of binding banks of creeks and dams, etc. It is, however, preeminently a pasture grass, rooting at the joints and forming a closely interwoven turf that withstands the grazing and trampling of stock; the numerous leaves produced from the base of the plant furnish excellent summer pasturage in sections where other grasses burn out. It also supplies a nutritious hay if cut early and often, yielding under ordinary conditions 1 to 2 tons per acre. For lawns in the hot Southern States it is highly prized, as while all other grasses are burned up during the hot season, Bermuda Grass will remain green, and, if regularly mown, it will make quite a velvety carpet. The only drawback is that in winter it looks a little brown, but in the Southern States an all-the-year-round green lawn can be maintained by sowing English Rye Grass every fall at the rate of 50 lbs. per acre and harrowing or raking it into the Bermuda Grass sod. Bermuda Grass seed should be sown in the spring, as it will not germinate until warm weather comes. For hay it gives its first cutting ordinarily in June, but does not succeed further north than Virginia. Sow 6 lbs. per acre.

Price, 75c. per lb.; 100 lbs., 70c. per lb.

JOHNSON GRASS (SORGHUM HALAPENSE)

As a meadow or hay grass, this variety is highly esteemed in the South, where during the hottest and driest seasons it can be relied upon to yield heavily. It spreads very rapidly and where it is desired to keep it within bounds, the seed should never be allowed to ripen, as it spreads from the seeds disseminated through hay much more than is generally supposed. Besides, when fully ripe, the feeding value is little better than corn stalks, but, cut before the seed tops emerge from the sheaths, its value as shown by chemical analysis is better than Timothy hay. When cut at time recommended, the embryo seeds are unpollinated and imperfect, and are incapable of sprouting, so there is no possibility of introducing this grass where it is not wanted by using such hay. We only advise the sowing of Johnson Grass where it is desired to remain as permanent meadow. Should be sown August to October, or in spring, at the rate of one bushel per acre.

Price on application.



HENDERSON'S NORTHERN GROWN ALFALFA MEDICAGO SATIVA

It has been well said that if "Corn is king," Alfalfa is the "Queen of forage plants." Alfalfa is a true leguminous plant, and a perennial, staying on the land for many years. It sends down its long tap-roots into the subsoil—five, ten, twenty, or even thirty feet, and utilizes the plant foods contained therein. It is a great soil enricher, for the nodules on its roots are the home of bacteria that extract the nitrogen from the air and transform it into a valuable fertilizing element. For this purpose it is superior to any other plant, because in addition to the nitrogen gathered from the air, its deep tap-roots bring up other mineral constituents from the lower layers of soil, to be utilized later by shallow feeding crops. It has been calculated by competent authority that the amount of fertilizer, that will come from an acre of good Alfalfa is equal to what the farmer would pay \$60.00 for, if purchased by the bag. As a hay producer it surely has no equal when once established, as from three to four cuttings may be had in a season, according to conditions, totaling four to six tons per acre.

THE FEEDING VALUE OF ALFALFA

is very high, being very rich in protein—which builds up blood, muscle and bone in growing animals. Corn and its fodder, and most other farm crops, are rich in carbohydrates, the fat-forming element, but deficient in protein, so that Alfalfa is the best crop to balance up the fat-forming feeds. Corn and Alfalfa form the ideal food for fattening all farm animals, one supplementing the other. Alfalfa and Barley, Alfalfa and Wheat, or Alfalfa and Oats are all excellent combinations.

Alfalfa naturally prefers a rich, loose limestone soil with a porous subsoil; but it also grows and thrives on a variety of soils, and in many different climates. When lime is not present in the soil, it must be supplied, the amount used being 1 ton of quicklime, or 2 tons of ground limestone per acre.

The time to sow in the North and Eastern States is June, July or August, 30 to 40 lbs. per acre if broadcasted or 25 to 30 lbs. if drilled in; in the South sow in February or September. Our pamphlet "Alfalfa on Northern Farms" sent free if asked for. (See engraving.)

Price, 35c. per lb.; \$18.75 per bushel of 60 lbs.; \$30.00 per 100 lbs.

HENDERSON'S MEDIUM RED CLOVER

Trifolium pratense

Common or Medium Clover, June Clover

This is by far the most important Clover grown in the Northern, Eastern and Central states, though it is also largely grown in some parts of the West and South. It thrives most luxuriantly on strong, well drained loams, though it does well on a great variety of soils excepting sour, or acid soils, when lime, plaster or wood ashes must be applied to counteract the acidity. Red Clover according to locality is a biennial or short-lived perennial. It grows one to two feet in height and usually makes two crops a year, yielding two to three tons of cured hay per acre. Clover hay is very nutritious; all stock fed on it require less grain; chopped and steamed it is a good substitute for green food for poultry during the winter. As pasturage all animals thrive on it, particularly cattle, sheep and pigs, and as a green manuring and soiling crop it is very valuable, adding humus and nitrogen to the soil. In Northern states Red Clover seed is usually sown in the spring; the earlier the better. If grown alone, use 12 to 14 pounds of seed per acre if broadcasted and cover not over half an inch deep. Red Clover may be seeded with a number of different grasses as Timothy, Orchard Grass or Tall Oat Grass, but usually it is grown with Timothy, 8 to 10 pounds of Clover and half a bushel of Timothy seed being sown per acre. A very satisfactory combination is 5 pounds of Red Clover, 5 pounds of Alsike Clover, 20 pounds of Timothy and 5 pounds of Fancy Red Top per acre. This makes a fine quality of merchantable hay and the field does not run out so soon as Clover and Timothy alone (See engraving).

Price (subject to change without notice), Henderson's Superior Sample (extra recleaned), 65c. lb., \$37.75 per bushel of 60 lbs.; \$62.00 per 100 lbs.

MAMMOTH OR PEA VINE RED CLOVER *Trifolium pratense perenne*

(PERENNIAL RED CLOVER or COW GRASS)

Perennial. Time of flowering, July. Height, 2 to 3 feet. Quite distinct from the common Red Clover, being of larger and coarser growth and valuable for purposes for which the latter is entirely unsuited. It lasts longer and is two or three weeks later than common Red Clover. Of very robust growth, yielding enormous bulk valuable for reclaiming exhausted lands. Sow (if alone) about 12 lbs. per acre; weight, 60 lbs. per bushel. Henderson's Superior Sample (extra recleaned).

Price, 68c. per lb.; \$38.50 per bushel, \$63.00 per 100 lbs.

SWEDISH CLOVER ALSIKE or HYBRID CLOVER *Trifolium hybridum*

Perennial. Time of flowering, July and August. Alsike or Swedish Clover is a hybrid intermediate in growth and appearance between Red and White Clovers. The blossoms are pinkish white. It is a perennial and one of the hardest of all Clovers, thriving particularly well in cool and cold climates and stands freezing well, but also adapts itself to most climates where Clovers grow, and will grow in moister soil than Red Clover, in fact, has produced splendid crops under irrigation. The plants attain a height of one to two feet; stems and leaves, though smaller than those of Red Clover, are much more numerous, making hay of finer texture. It is very nutritious, its feeding value equaling that of Alfalfa and is good for either green forage, pasture or hay. When mixed with Red Clover it improves the quality of the latter. It is valuable for sowing with other Grasses and Clovers as it forms a thick bottom, increasing the yield of hay.

Alsike frequently produces good crops on soils on which Red Clover will not grow. We strongly advise farmers to add 2 or 3 lbs. per acre to their usual seeding of Red Clover and Timothy. Sow (if alone) 8 lbs. per acre; weight 60 lbs. per bushel.

Price, 55c. per lb.; \$34.75 per bushel of 60 lbs., \$50.00 per 100 lbs.

WHITE BOKHARA CLOVER

(SWEET CLOVER) *Melilotus alba*

Biennial. Time of flowering, June to September. Height, 3 to 5 feet.

A perennial leguminous plant of tall, shrub-like growth, occasionally grown as a forage plant, and often for bees; the numerous small white flowers possess a sweet, honey-like fragrance. The importance of Bokhara Clover, however, is its value for plowing under for green manuring, particularly to prepare poor soils where it is difficult to get other crops to grow. Sow 10 lbs. per acre; weight 60 lbs. per bushel.

Price, 45c. per lb.; \$24.75 per bushel, \$40.00 per 100 lbs.

JAPAN CLOVER *Lespedeza Striata*

An annual leguminous plant considerably grown, particularly in the South, as a summer pasture, green forage and hay crop. It also has much value as a soil enricher when plowed under as green manure. It will flourish on poor and exhausted soils, too poor to produce profitable crops of any other forage plant. Though an annual, once sown it reseeds itself from year to year, and in that way will last indefinitely, and is pronounced by competent authorities as the best pasture plant for impoverished soil in the Southern states. Sow 14 lbs. per acre; weight 20 lbs. per bushel.

Price, 65c. per lb. \$12.50 per bushel of 20 lbs.; \$60.00 per 100 lbs.



Henderson's Superior Recleaned CRIMSON or SCARLET CLOVER

Time of flowering, June; height, 2 feet.

Trifolium Incarnatum

Crimson Clover forms an upright branching plant 1 to 2 feet in height, according to soil, locality and season. It roots very deeply and is a bountiful provider of nitrogen.

Plowing under a good crop of Scarlet Clover is equivalent to 20 tons of stable manure per acre and even if the Clover be harvested or pastured, the benefits derived from the wonderful nitrogenous root formation will alone many times repay the cost of seed and labor.

It is the cheapest source of nitrogen, and has restored to profitable cultivation thousands of acres of poor land.

As Hay—Cut when coming into full bloom, not later—and properly cured—it is richer in protein than Red Clover and especially adapted for growing and working animals. The yield of cured hay on average soils is 2 to 3 tons per acre, on lighter soils less and on heavier, richer soils, phenomena crops have been produced.

For Green Forage and Silage it is especially adapted for dairy stock and is much relished by them. The average yield cut green before the flowers commence to mature is 8 to 15 tons per acre, though up to a 20-ton yield per acre is sometimes reported.

As Pasture Crimson Clover makes one of the best early spring pastures, supplying an abundance of nutritious herbage for several weeks if stock is turned on it when about 6 inches high.

As a Green Manuring Crop, Cover Crop or Winter Soil Mulch Crimson Clover is of the greatest value, particularly as its season of growth permits it to be sown in summer or early autumn after a grain or vegetable crop has been removed and then be plowed under the next spring. Thus it does not in any way interfere with other crops.

Crimson Clover should not be fed either cured or green after the flowers begin to mature for the hairs of the calyx then begin to stiffen and harden and are apt to form troublesome "hair balls" in the stomachs of animals.

Sow at the rate of 15 pounds of seed per acre, either broadcast or drilled. Cover lightly with a harrow. If sown too early, especially in Southern States, Crimson Clover is apt to mature and form seeds the same season without making full growth. In the latitude of New York City sow from July 15 to September 15, and in the South as late as October.

Price, 35c. per lb.; \$18.75 per bushel of 60 lbs.; \$30.00 per 100 lbs.

HENDERSON'S EUREKA YELLOW DENT CORN

WOOD'S EARLY NORTHERN WHITE DENT CORN

EXTRA EARLY YELLOW FLINT CORN

LONG'S CHAMPION
YELLOW DENT CORN



HENDERSON'S SELECTED FIELD CORN

Plant 8 to 10 quarts per acre if in hills. Broadcast 2 bushels per acre.

HENDERSON'S EUREKA YELLOW DENT CORN

This is one of the finest and most productive field Corns grown; it is a tremendous yielder—150 bushels of shelled Corn per acre is not unusual. The average yield of Corn per acre, as shown by U. S. statistics is 26 bushels. The cost of growing an acre of Corn yielding only 26 bushels, is just the same as for growing an acre of Henderson's Eureka or Long's Champion, yielding 100 bushels. The plants grow 12 to 15 feet high, a large proportion of them bearing two immense ears to the stalk; the ears are very handsome averaging 12 to 15 inches long, with small red cob covered full, and over both butt and tip ends, with 18 to 22 even rows of large, deep grain of a rich orange-yellow color. It is fairly early for so large a Dent Corn, but, of course, does not mature as quickly as the small early Dent and Flint varieties, but where 105 to 110 days of "Corn weather" are assured, it is the Corn to grow. For ensilage or fodder, cured or green, Henderson's Eureka can be safely planted even in Northern States and is not equalled by any other Corn grown, being leafy, luxuriant growth, with large ears, when only half grown, thus giving a great quantity of fodder per acre. Corn planted in hills requires 8 to 10 quarts per acre.

Price, 25c. per qt.; \$1.65 per peck; \$6.00 per bushel; 10 bushels and upward, \$5.90 per bushel.

WOOD'S EARLY NORTHERN WHITE DENT CORN

Extraordinary prolific, yields 110 bushels per acre (shelled), ripens thoroughly south of Albany and Buffalo. Large ears 10 to 12 inches long, 7 to 8 inches in circumference. Borne 2 to 2½ feet from the ground. Long Kernels, small cob. Leafy, luxuriant plant, making fine fodder.

While the raiser, Mr. James Wood, of Westchester, N. Y., ex-President of the New York State Agricultural Society, does not claim this to be a new variety, having originally been a white Southern corn, yet by forty years of intelligent selection, it has become the earliest large white Dent Corn we know of and is quite distinct from the original parent. It will ripen in Connecticut, New York State (except in that portion north of Rochester and Troy), Southern Michigan, Southern Wisconsin, etc., and being vastly superior in every respect to the flint varieties and the small Dent Corns usually raised, will be by far the most profitable sort in latitudes north of New York City, where the Eureka cannot safely be planted. Plant 8 to 10 quarts per acre if in hills. (See engraving).

Price, 30c. per qt.; \$1.75 per peck; \$6.50 per bushel; 10-bushel lots, \$6.40 per bushel.

EXTRA EARLY YELLOW FLINT CORN

One of the best recent introductions yields 75 to 85 bushels of shelled Corn per acre. Can be shelled and ground earlier than any other variety.

This is a valuable addition to the Flint varieties of Field Corn. It is the earliest variety in existence and especially adapted to Northern conditions (cool nights and short summers) and under favorable conditions the yield is immense. The ears are eight-rowed, remarkably long, frequently measuring 15 inches and over, of a rich amber color, thickly set with large broad kernels. The stalks are of medium height. In ordinary seasons it will mature in ninety days, and can be shelled and ground for feed earlier than any other large-yielding variety. It is especially valuable in sections where Corn cannot be planted before the middle of June. With good cultivation Extra Early Yellow Flint will yield 75 bushels of shelled Corn per acre. Considering that it is an eight-rowed early sort this is an excellent yield. Specially recommended for planting in northern New York, Connecticut and Massachusetts. (See engraving).

Price, 30c. per qt.; \$1.75 per pk.; \$6.50 bush.; 10 bush. at \$6.40 per bush. From 10 Bushels and Upwards Deduct 10c. Per Bushel from vars. below

LONGFELLOW FLINT. A large 8-rowed Yellow Flint variety well adapted for the Northern States. The ears are long, some of them measuring 15 inches, and oftentimes two or more good specimens grow on one stalk. Grain large and broad and yellow. The cob is quite small. It is the largest variety of Yellow Field Corn safe to plant in the latitude of Massachusetts, where it is quite extensively grown.

Price, 25c. per qt.; \$1.65 per peck; \$6.00 per bushel.

RURAL THOROUGHbred WHITE FLINT. In appearance this closely resembles the old White Flint, but the plant branches and suckers more, and is therefore valuable for ensilage in the Northern States, as well as for the grain.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

COMPTON'S EARLY. The earliest known Yellow Flint variety, ripening in from 76 to 85 days. It is a handsome 10 and 12-rowed sort; very productive, and will ripen in the Northern States.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

LARGE WHITE FLINT. Handsome ears, large and well filled kernels, white and of fine quality.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

LARGE YELLOW FLINT. (Early Canada Yellow.) Similar to the above excepting in color; largely grown in the extreme North.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

LONG'S CHAMPION YELLOW DENT CORN

Long's Champion Yellow Dent Corn is the climax of 25 years of Corn breeding and selection by one of the most successful farmers in the Pennsylvania Corn belt.

Will mature in the latitude of New York if planted during the first week of May. Early planting is essential, even though there may be some risk of injury by the frost, which could be overcome on emergency by replanting. This King of Corns is without doubt the finest, the largest and the most productive Yellow Dent Corn ever produced, and will be found to be of great value to the farmer, especially in the Corn belt of the Middle and Eastern States, on account of its immense yield, at least 25% and often 50% more than can be obtained from the average old-type Corns generally planted.

The ears weigh 2 to 2½ lbs. at cribbing time, and contain 20 to 24 uniform rows of long, broad kernels.

It is a luxuriant grower, about 12 to 15 feet high, and in Lebanon County, Pa., has never failed to mature by September 20th when planted the first week of May. There is but a limited quantity of seed grown by the originator, which can be had through us. (See engraving.)

Price, 30c. per qt.; \$1.75 per peck; \$6.50 per bushel; 10-bushel lots, \$6.40 per bushel.

OTHER VARIETIES OF DENT CORN

From all the varieties offered below, in lots of 10 bushels and upward, deduct 10c. per bushel.

QUEEN OF THE PRAIRIE. (Pride of the North.) This variety is valuable to grow North as it matures early. Planted as late as July 4th, it has fully matured by October 1st. The ears grow 8 to 10 inches in length, from 14 to 16 rows, slightly tapering. The kernels are closely set together on the cob, light orange in color and make excellent meal.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

LEAMING. Ears are of good size, set low down, and nearly always grow two to each stalk. Very small, red cob, with a deep, long grain, of a rich golden color. It matures early, and if planted not later than the first of June, will generally ripen, and be fit to husk and crib early in September.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

WHITE CAP YELLOW. An early variety, said to produce better results on poor, thin or sandy soil than any other variety, and is less affected by drought. The grain is handsome yellow in color, with white tips.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

HICKORY KING. Has the largest grains with the smallest cob of any white Corn. The stalks of strong, vigorous growth, generally bear two good ears each. It is not, however, considered a safe crop north of Philadelphia. Will make more shelled Corn to a given bulk of ears than any other variety.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

EXTRA EARLY HURON. As early as most of the Flint Corns, and may be grown even in the most Northern States and in Canada. The grain is somewhat narrow, but long and deep, with small cob.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

EARLY MASTODON. (The Earliest Large Dent Corn.) Produces large ears for an early variety. It grows strong at a medium height, with broad, heavy leaves, and makes a fine shelled Corn in appearance being purely Dent.

Price, 25c. per qt. \$1.50 per peck; \$5.50 per bushel.

GOLDEN BEAUTY. This Corn has given great satisfaction. It is exceedingly productive; a large proportion of the stalks produce two fine ears. The ears are of perfect shape, with from ten to fourteen rows, and filled out to the extreme end of cob. The cobs are unusually small. The richness of color and fine quality of grain make it very superior for grinding into meal.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

EARLY BUTLER. A cross from Pride of the North. It has the smallest cob of any Dent Corn in cultivation. It is also the very earliest Dent Corn and is very profitable to grow. It is just the Dent Corn for Northern farmers—grows quick and strong, and has small cobs, very long grains, and good-sized ears.

Price, 25c. per qt.; \$1.50 per peck; \$5.50 per bushel.

POP CORN

White Pearl. Smooth-grained ears, 4 to 5 inches long, by 7⁄8 to 1 1⁄8 inches diameter, good for either family or market use.

Price, 14c. per lb.; \$12.00 per 100 lbs.

Amber Pearl. A new and distinct shade of color; it matures very early and is in every respect a first-class Pop Corn.

Price, 15c. per lb.; \$12.00 per 100 lbs.

White Rice. (Rat Tooth.) A very fine white variety, ears 4 to 5 inches in length, and 1 to 1 1⁄8 inches diameter. Kernel pointed. Especially salable among the retail grocers.

Price, 14c. per lb.; \$12.00 per 100 lbs.

SOUTHERN
HORSETOOTH

CORN FOR FODDER AND ENSILAGE

Southern Horse Tooth. Grows to a large size, is very leafy and well adapted for ensilage. Large quantities of this corn are sold by feed and other stores which usually result in disappointment to the farmer. There is no corn more difficult to cure or keep properly, and much of it is kiln-dried, while large quantities have been stored in elevators and gone through a sweating process which has destroyed the germ. The stock we offer is carefully selected and sun-dried and of high germination. (See engraving.)

Price, \$5.00 per bushel; 10 bushels and upwards, \$4.90 per bushel.

Improved Early Horse Tooth. Being nearly two weeks earlier, this variety is better adapted for fodder and ensilage in the Northern States than the ordinary Southern Horse Tooth.

Price, \$5.50 per bushel; 10 bushels and upwards, \$5.40 per bushel.

Rural Thoroughbred White Flint. An early variety, valuable for the Northern States. Owing to its suckering and branching habit, it yields enormously.

Price, \$5.50 per bushel, 10 bushels and upwards, \$5.40 per bushel.

Evergreen Sweet Fodder Corn. Fodder grown from the Evergreen Sweet Corn is superior in quality to that of the ordinary field varieties, being richer, sweeter and more digestible. The best plan is to sow in rows 24 to 30 inches apart, using one bushel of corn per acre.

Price, \$1.50 per peck; \$5.50 per bushel; 10 bushels, \$5.40 per bushel.

Sweet Fodder Corn. Best for cutting and feeding green during the summer months. This is better than any field corn, from the fact that it is so very sweet and nutritious that cattle will eat every part of the stalk and leaves with relish. Drill thickly, in rows three feet apart using $1\frac{1}{2}$ bushels of seed per acre.

Price, \$1.40 per peck; \$5.00 per bushel; 10 bushels, \$4.90 per bushel.

SUGAR CANE AND BROOM CORN

Sugar Cane, Early Amber. Of great value for cutting green and feeding green during hot weather in summer, when pastures are apt to be burned up. Being a tropical plant, it makes its best growth during just such weather, and cattle, horses and sheep relish it, and it may be fed to them with safety. Sow in drills, 10 to 12 lbs. per acre; broadcast, 20 to 25 lbs. per acre. Should be cut when about 2 feet high, and will yield several such cuttings. Earlier than the Orange and may be grown even in Northern States. Cured in the same way as a heavy crop of Clover, it makes an excellent quality of hay.

Price, 16c. per lb.; \$12.00 per 100 lbs.

Sugar Cane, Early Orange. Produces a larger and heavier growth than the Amber but is later. Price, 16c. per lb.; \$12.00 per 100 lbs.

Broom Corn, Evergreen. Entirely free from all crooked brush, and remains strictly green, consequently always commands the highest market price. Price, 16c. lb.; \$12.00 per 100 lbs.

Rural Branching Doura. (*Millo maize, Sorghum vulgare.*) A wonderfully productive fodder plant that makes a great amount of foliage, and can be cut several times in the season. Plant 4 to 5 lbs. to the acre.

Price, 16c. lb.; \$12.00 per 100 lbs.

Yellow Branching Doura. (*Yellow millo maize.*) Earlier than the Rural Branching and of taller growth, often attaining a height of 9 to 12 feet, but it does not stool out quite as much from the ground, although it branches out from the joints. It produces an enormous quantity of fodder, for which stock show a marked partiality. Plant 4 lbs. to the acre. Price, 16c. lb.; \$12.00 per 100 lbs.

KAFFIR CORN *Andropogon
Sorghum Var.*

Kaffir Corn is a valuable forage plant, growing $4\frac{1}{2}$ to 6 feet high; it is stocky, erect, and produces wide, luxuriant, succulent foliage, making excellent fodder, either green or dried, highly relished by all kinds of stock. Each stalk produces from 2 to 4 long, narrow heads of grain. Kaffir Corn has the quality common to all Sorghums, of resisting droughts, and in this fact is to be found its peculiar value, especially in Southern and Western sections, where it has yielded paying crops of grain and forage even in seasons so dry that Corn utterly failed. The culture is the same as for Field Corn, and when sown alone Kaffir Corn should be broadcasted at the rate of from $\frac{3}{4}$ to 1 bushel per acre. When raised for forage it should be cut before heading out. For grain sow in rows 3 feet apart using 3 to 5 lbs. of seed to the acre. In many sections Kaffir Corn is sown broadcast with Cow Peas, using a peck of Kaffir Corn to a bushel of Cow Peas. It then acts as a support to the Peas which produce a much larger crop when grown in this way. They can both be harvested together, the combination making an enormous crop of highly nourishing feed.

Red Kaffir Corn. This very leafy and juicy variety is taller but more slender than the white, ripens a little earlier and yields heavier. It is also valuable for sowing on poor land, as it will give better results under these conditions than the White Kaffir Corn or other Sorghums, most of which require a well-enriched soil. The stalks and leaves are juicy and brittle, and make very good fodder, greatly relished by cattle whether fed to them green or dry. The grain or seed is readily eaten by all live stock and poultry. Price, 16c. lb.; \$12.00 per 100 lbs.

White Kaffir Corn. Grows 4 to 5 feet high, with numerous wide leaves. The grain crop is heavy being sometimes 50 to 60 bushels to the acre, and its nutritive value is almost as good as other cereals. A fine food for poultry. Price, 16c. lb.; \$12.00 per 100 lbs.

Jerusalem Corn. Grows about five feet high, and is one of the surest crops for dry countries and seasons, having in the driest season in the past 15 years in Kansas produced a crop, without irrigation, when other forage plants perished. 5 lbs. will plant an acre. Price, 18c. lb.; \$14.00 100 per lbs.

Teosinte. (*Reana luxurians.*) The plant resembles Corn, but is more leafy and tillers enormously. After cutting, it grows again with remarkable rapidity. Those having only a small amount of land on which it is desired to produce the maximum amount of forage should grow Teosinte. Plant in drills, 6 to 8 lbs. per acre.

Price, 25c. $\frac{1}{4}$ lb.; 80c. per lb.

HENDERSON'S JAPANESE BUCKWHEAT

(First introduced into the United States by Peter Henderson & Co.)

Since we introduced the Japanese Buckwheat, the tendency, on account of the hot, dry summers in the United States, has been for the grain to gradually grow smaller. The seed we offer is grown from the largest type imported from Japan and is much larger in grain than that usually offered, being only one year removed from imported Japanese seed. This variety is now more generally grown than any other, but to those to whom it may still be unknown we would say that the kernels are at least twice the size of any other variety and of a shape peculiar and distinct from all others. The color of the kernels is also most distinct, being of a rich dark shade of brown. There is always a good market for the grain as it is in demand for all purposes. For bees it is of the greatest value and for this purpose has displaced all other varieties.

ALWAYS SOW WITH CRIMSON CLOVER

An excellent plan is to sow Crimson Clover along with Buckwheat, especially when put in late from middle of July to first of August. They come up together, but the Buckwheat is the stronger grower and the Crimson Clover makes but little showing until the Buckwheat is removed. If frost should kill the Buckwheat before ripe, it may be left as a protection, the dead Buckwheat being just the sort of mulching and protection needed by the Clover. The Crimson Clover and mulching of Buckwheat can be plowed under in May and for Potatoes or Corn there is no better preparation. Japanese Buckwheat is one of the most satisfactory crops to sow on new or rough land, but Buckwheat should invariably be sown as a second or catch crop, and we would advise all growers to sow Crimson Clover along with it as recommended above, for, even though the Buckwheat be killed by an early frost, the value of its own humus is worth more than the cost of the seed in addition to its value as a winter protection to the Clover.

Price, \$4.00 per bushel of 48 lbs.; 10-bushel lots, \$3.90 per bushel.

Henderson's CLYDESDALE OATS

The Most Popular High-Grade White Oat
in the United States

Early and Productive—Free from Disease

Since we introduced this Grand Oat it has steadily and deservedly gained in popularity, until today it is the most popular High-Grade White Oat in the United States.

The cost of growing an acre of Oats yielding 30 bushels per acre (the average yield) is exactly the same as growing an acre of Henderson's Clydesdale Oats yielding 80, 85 or 100 bushels per acre and the ultimate financial benefit accruing to the American farmers by the annual distribution of several thousand bushels of Henderson's Clydesdale Oats cannot be overestimated. These Oats weigh considerably more per measured bushel than any other variety, and they deteriorate in weight only from three to four lbs. each year they are grown here, so that the produce is worth for seed purposes at least double the market value of ordinary Oats.

No other Oat can show such a record—75 to 100 bushels per acre, and double the usual quantity of straw. Another most important advantage of Henderson's Clydesdale Oats to the farmer is the fact that they do not shell out in handling, and that they have been thoroughly cleaned by the latest and most improved machinery, and are absolutely free from foreign and weed seeds. Sow 3 bushels per acre. (See engraving; also colored plate on back cover.)

PRICE Clydesdale Oats, per peck.....\$0.90
Per Standard bushel of 32 lbs.....3.00
10-bushel lots and upward, per bushel.....2.90
100-bushel lots, per bushel.....2.80

LONG'S WHITE TARTAR OATS

This grand Side Oat, imported by us in 1901 and grown for us by the late Mr. I. S. Long, a prosperous, scientific farmer of Lebanon County, Pa.—in compliment to whom it was named—has proven remarkably adapted to American climates and conditions, more than fulfilling our anticipations when introduced. Reports from those who grow it—covering many sections of the country—fully verify our first praise and statements regarding this variety and indicate that it holds up well in size, weight and yield, year after year, even in sections where other varieties rapidly deteriorate. The past season was a very favorable one for all grain crops; it has maintained its reputation as the earliest, heaviest and most prolific Oat in cultivation. It is suitable for all soils, of robust and vigorous constitution, is remarkably early and an immense cropper; the straw, usually 4 to 5 feet in length, is stout, stands up well and does not readily lodge or twist. The heads are very long, measuring from 8 to 10½ inches, and the kernels are of immense size, thick, plump and heavy. It has proven its superiority, and is undoubtedly the heaviest cropping domestic white Oat ever offered. Planted alongside some of the older varieties, it usually yields more than double the number of bushels per acre of any of the other sorts: 100 bushels per acre may be expected of it under good conditions. A field of this Oat in any farming community invariably attracts the attention, and admiration of neighboring farmers.

Its extreme earliness, great length and strength of straw, thick, plump grains and the heavy yields it is capable of producing give Long's White Tartar all the necessary qualifications which go to make an ideal Oat. Sow 3 bushels per acre.

PRICE, Long's White Tartar Oats, per peck.....\$0.80
Per Standard bushel of 32 lbs.....2.75
10-bushel lots and upward, per bushel.....2.65
100-bushel lots, per bushel.....2.50

EARLY NEWMARKET OATS. A grand new breed of English pedigree Oats of wonderfully vigorous growth, producing very early a heavy crop of unusually large, plump Oats, remarkable for their thinness of husk, which greatly adds to their feeding value. The straw is tall and strong, withstanding unfavorable weather well, and is practically immune from rust. For quality, earliness, vitality and productiveness the Early Newmarket Oat is unsurpassed.

Price, \$2.75 bushel (32 lbs.); 10 bushels and upward, \$2.65 bushel; 100 bushels and upward, \$2.50 bushel.

PROBSTEIER OATS. A leading white variety. It is very productive and heavy, and straw very strong. It is of Scandinavian origin, but well adapted to this climate; it ripens two or three days later than many varieties.

Price, \$2.75 bushel (32 lbs.); 10 bushels and upward, \$2.65 bushel; 100 bushels and upward, \$2.50 bushel.

SWEDISH SELECT OATS. Scientific breeders of seeds in Sweden have devoted themselves particularly to the improvement of Oats, and many meritorious varieties have originated in that country. Probably the variety we offer, Swedish Select is the best all around Oat among them as it thrives well on all soils. It is a strong grower, a great drought resister and the grain is short, plump and heavy. They are strongly recommended by the United States Department of Agriculture and all our customers should try them.

Price, 80c. peck; \$2.75 bushel (32 lbs.); 10 bushels and upward, \$2.65 bushel; 100 bushels and upward, \$2.50 bushel.

BLACK TARTARIAN OATS. A Side Oat and the most prolific and distinct variety of Black Oat grown. Its ear is carried all on one side; it is very early, long and strong-strawed, and bears a short, plump grain.

Price, \$3.00 bushel (32 lbs.); 10 bushels and upward, \$2.90 bushel.



STORM KING OR TRUE WHITE TARTARIAN OATS

We have pleasure recommending this true White Tartarian or Side Oat. It is a heavy cropper; the grain is short, plump, thin skinned and of the highest feeding value. The straw as its name implies is very strong and stiff, enabling it to resist the severest weather. The average weight of the grain per measured bushel is 46 lbs. For several years we have distributed a limited quantity of Storm King Oats which has proven highly satisfactory. The repeated successful trials warrant us cataloging and recommending it. We advise every grower of Oats to try this variety. Sow 3 bushels per acre.

PRICE, Storm King Oats, per peck.....\$0.90
Per Standard bushel of 32 lbs.....3.00
10-bushel lots and upward, per bushel.....2.90
100-bushel lots, per bushel.....2.80

WHITE RUSSIAN OATS. Is a Side Oat somewhat coarse, but is much appreciated for its rugged hardiness. It stools freely, has strong, stiff straw, heads large with plump grain. A heavy cropper.

Price, \$2.75 bushel (32 lbs.); 10 bushels and upward, \$2.65 bushel; 100 bushels and upward, \$2.50 bushel.

WINTER or TURF OATS are quite extensively grown in the Southern States, where they are in high favor. Sown in the fall they either afford excellent pasture during the winter or give abundant yield the following season. The demand for Oats of this character has been gradually extending northward, and to meet it we have been growing in Northern Pennsylvania, for several years, an acclimatized strain which is remarkably hardy and will stand the winter as far north as New Jersey. They are incomparably superior to the Winter or Turf Oats of Virginia; they stool out strongly, are earlier, more vigorous and less susceptible to rust; they have stiff straw, stand up well, and are much more productive than Spring Oats. Sow in September, at the rate 1½ bushels per acre, and sow deep. They will stand much more severe weather when planted four inches deep than near the surface.

Price, 80c. peck; \$2.75 bushel (32 lbs.); 10 bushels and upwards, \$2.65 bushel.

MARQUIS—Spring Wheat

This famous variety is of Canadian origin and was bred by crossing Red Fife and Hard Calcutta, an acclimated Wheat from India. It retains the frost-resisting qualities of Red Fife and also the extreme earliness of Hard Calcutta. It attracted great attention in America at the New York Grain Exposition in 1911, when it was awarded the \$1,000 prize given by Sir Thomas Shaughnessy for the best Wheat in America. Marquis Wheat is almost ten days earlier than any other variety and matures—as several farmers put it—in time to avoid rust, smut, or drought. As to productiveness many growers report 52 and more bushels per acre, but a five year average at Brandon Experiment Station was found to be 44 bushels per acre. Milling tests show that this Wheat contains a greater quantity of gluten, is a better color, shows greater absorption, and is heavier in weight per bushel than any other Spring Wheat. Our stock was raised in the far North, and is early, hardy and productive. We strongly recommend our customers to try Marquis Wheat this year. (See engraving).

Price, bushel (60 lbs.), \$5.00;
10-bushel lots @ \$4.90.

MARQUIS WHEAT IN NEW YORK STATE

"We sowed the Marquis Wheat which we purchased from you last year, rather late in May. This Wheat was sown on clay loam and did not receive any special attention, except that the soil was put in a good state of cultivation at the time of seeding. The field of 40 acres yielded 49½ bushels per acre, of good plump grain, measured when it was thoroughly dry."

C. E. HAMILTON,
Mgr. Heart's Delight Farm,
Chazy, Clinton Co., N. Y.



The Earliest
The Most
Productive
The Highest
in Quality

Pedigreed BLUE STEM Spring Wheat

A Good Variety to Sow Along with Pasture Grasses

Pedigreed Blue Stem is quite distinct from all other Spring Wheats, having when green a pronounced blue bloom on it, hence the name. When ripe the straw is a beautiful golden yellow color. This variety is remarkably free from rust, is very productive, has a hard kernel and there is a total absence of beard. Its milling qualities are of the best.

Price, bushel (60 lbs.), \$5.00; 10-bushel lots @ \$4.90.

HENDERSON'S SUPERIOR SEED WHEAT is not only grown especially for seed purposes from choicest selected cross-bred and pedigree strains, but it is all re-cleaned at our warehouses (750,000 bushels capacity) which are equipped with the most modern seed-cleaning machinery in America. This enables us to supply direct to the farmer plump and heavy seed, of undoubted superiority, at lowest possible prices, where quality is considered. Often through pressure of other work, the seeding of Winter Wheat is neglected until too late and is either not sown at all or results in failure. With the two varieties of Spring Wheat here offered, this difficulty can be overcome by Spring sowing. They are the best of the Spring Wheats, yield well, and the milling quality of the grain surpasses even the best of the Winter varieties. Spring Wheat is also a satisfactory crop to sow along with Grass seed.

The prices herein named are those ruling at this date (February, 1919) for the crop of 1918 but they are subject to market fluctuations. Delivery f.o.b. New York, bags extra. Special quotations to large buyers.

Henderson's SUPERIOR WINTER SEED WHEAT

For illustrations and descriptions of varieties see "Henderson's Fall Wheat Circular" issued in September. We offer the following varieties:

Jone's St. Louis Grand Prize
Clawson Longberry
Silver Sheaf Longberry Red
Pride of Genesee

Jone's Red Wave
Early Red Chief
Rural New Yorker
Gold Coin, etc., etc.

We can also take orders now for delivery from the harvest of 1918 at prices ruling at time of shipment.

HENDERSON'S SELECTED RYE

The Hardest and Earliest Grain Crop Grown

Rye is a valuable crop for either soiling, green fodder, straw or grain. It is largely used by farmers to seed down with in the fall, and is considered preferable to Wheat for this purpose, as it protects the young grass and matures two weeks earlier in the summer than Wheat. It is also extensively used for fall pasture when sown early and for cutting green in late spring and early summer, but when wanted for cutting it is best sown with the Sand or Winter Vetch. (Described on page 14.)

On light sandy soils where other cereal crops would be a failure, rye can be depended upon to produce fair returns. Because of its great hardness and ability to grow upon poor land, rye is the best crop to plow under to increase the humus in the soil; but this must be done early in the spring before the rye has made much growth, otherwise it would exhaust the moisture in the soil, to the detriment of succeeding crops. A field of rye which has made good growth in the fall is often pastured with cattle or sheep for a time, and also in the spring moderately. The stock is then removed and the rye allowed to ripen. Rye is the only cereal crop, which may be thus treated without great injury. Sow (if alone) from 1½ bushels to 2½ bushels per acre.

Henderson's SELECTED SPRING RYE

A variety produced by planting Winter Rye in the spring for several years, and selecting the seed until the type was fixed. It is an excellent "catch crop" where fall-sown grain has been winter-killed, and also for fodder and grain.

Price, \$4.50 per bushel of 56 lbs.; 10-bushel lots, \$4.40 per bushel.

WINTER RYE

For winter varieties see our Fall Wheat and Grain Circular issued post free in September. We offer the following varieties:

Henderson's New Invincible
Thousandfold Winter

Giant Winter
Excelsior Winter—and Winter

We can take orders at any time at prices ruling at time of shipment.

SELECTED BARLEY

Barley is a good crop to follow Corn grown on Clover sod, as the land is then in prime condition. Harrow and roll well after seeding. The crop should be harvested before it is too ripe, if a bright white berry is wanted. Sow $2\frac{1}{2}$ bushels per acre broadcast and $1\frac{1}{2}$ to 2 bushels per acre if drilled.

BEARLESS BARLEY. Bearless Barley is remarkable for its great productiveness; it having been conclusively shown during the past few years, that it is far and away above all others in that respect. Also for the entire absence of the troublesome beard common to all other varieties except the Improved White Hulless. Although it makes a good grain crop, it is of the greatest value, as a quick growing and nutritious forage crop, either to feed green or cured as hay. If cured as hay it should be cut when the grain is in the milk.

For fattening hogs or feeding to live stock generally, it is particularly good, and also much safer owing to the absence of beard. Many young animals have been choked by feeding them the bearded Barleys. Bearless Barley is also preferred by many brewers for malting purposes. Sow $1\frac{1}{4}$ to 2 bushels per acre.

Price, 85c. per peck; \$3.00 per bushel of 48 lbs.; 10 bushels, \$2.90 per bushel.

IMPROVED WHITE HULLESS. A valuable new variety, which should be sown at the rate of $1\frac{1}{2}$ bushels per acre about the time of sowing Oats. It is two or three weeks earlier than ordinary Barley, grows about the same height, and will not shatter in the field, even when very ripe. The grain is not unlike Wheat, and weighs about 60 lbs. per bushel, instead of 48 lbs. as other Barley. For feeding to horses and hogs, when ground, it is unequalled, and is also exceedingly valuable as hay, if cut and cured just before ripening.

Price, \$1.50 per peck; \$5.00 per bushel of 48 lbs.; 10 bushel lots, \$4.90 per bushel.

VERMONT CHAMPION. This is a two-rowed variety which is much esteemed by northern farmers. It is quite early, extremely hardy, and very prolific. The heads are longer than the six-rowed varieties, and the berries are larger. It always fetches a high price, on account of its good appearance; and its malting qualities are excellent.

Price, 85c. per peck; \$3.00 per bushel of 48 lbs.; 10-bushel lots, \$2.90 per bushel.

JAPANESE MILLET (*Panicum Cruss-Galli Major*)

Especially Valuable for the Northern and New England States. The Best Recent Introduction for the Silo and Cutting Green

Entirely distinct from any other Millet, grows tall and produces an enormous crop. It grows 6 to 8 feet high, stands remarkably well notwithstanding its great height, and yields from 10 to 12 tons green fodder per acre. When cured it makes an excellent quality of hay, and its feeding value is far superior to Corn fodder, and it is much relished by all kinds of stock, whether green or cured. If to be made into hay, cure as you would a heavy crop of Clover.

An ideal ensilage mixture may be composed of two parts of this millet to one part of Soja Beans, mixed when filling the silo. The Soja Beans supply the albuminoids and fat in which the Corn and Millet are deficient. This mixture forms a complete balanced ration for milch cows without the addition of grain, though it is, of course, advisable to feed grain occasionally as a change.

This ensilage combination will certainly become popular, and when generally used, as we predict it will be, it will result in a saving of hundreds of thousands of dollars annually to the dairymen and farmers of the United States. This Millet does not endure drought well, except it be sown early in retentive soil, and it is not adapted to the climate, nor is it recommended for the Southern States; but north of Washington, D. C., and especially for good, rich soils, we confidently recommend its general cultivation. It will produce a fair second cutting, if sown early in May, and cut when in blossom. It may be sown from the middle of May to the 1st of July, broadcast, at the rate of 15 lbs. per acre, but it is better to sow it in drills, 12 to 18 inches apart, using 10 to 12 lbs. per acre, and hoed between the rows to keep down all weeds until the plant attains a height of 12 to 18 inches when its rapid growth will smother all weeds.

Price, 15c. lb.; 10 lbs. \$1.20; 100 lbs. \$10.00. (See engraving.)

HUNGARIAN MILLET. Is the quickest of catch crops for hay, and as it may be sown any time during the summer months up to the middle of August, it is invaluable for overcoming a shortage of the regular hay crop, it is fairly drought resistant. Many farmers now occupy their land with other crops, and for their hay depend entirely upon Hungarian Grass, which they can sow after other crops have been harvested. Sow 1 bushel per acre.

Price, \$6.00 per bushel of 48 lbs.; 10 bushels and upwards, \$5.90 per bushel.

GOLDEN MILLET. *Northern Grown.* This variety is considerable larger than Hungarian and yields a much heavier crop, but is later and not so quick growing, consequently cannot be sown much after the fourth of July in this latitude. To maintain its heavy cropping character, seed of this variety needs to be specially cultivated.

Our seed is specially grown and selected, and will produce nearly double the crop obtained from seed not so grown. Sow one bushel per acre.

Price, \$5.00 per bushel of 50 lbs.; 10 bushels and upwards, \$4.90 per bushel.

PEARL MILLET (*Pennisetum Spicatum*)

This has been cultivated for some years in some of the Southern States, under the names of African Cane, Egyptian Millet, Cattail Millet and Horse Millet. It grows with tropical luxuriance in strong, loamy soil, particularly if well enriched, and then attains a height of from 7 to 9 feet, and produces an enormous quantity of green fodder, for which purpose it can be cut several times during the season, as it immediately starts a new growth after cutting, and grows with great rapidity. Is not so hardy as the other varieties, and succeeds best in latitudes south of New York. The first cutting should be made when about 3 feet high; this will cause it to tiller and spread, and as the season advances and becomes warmer, it grows with marvelous rapidity. It will prove of exceptional value if grown in sections subject to protracted droughts. Sow in drills, 5 to 6 lbs. per acre; if broadcast, 8 lbs. per acre. Weight, per bushel, 56 lbs. Clean seed,

Price, 25c. per lb.; \$20.00 per 100 lbs.

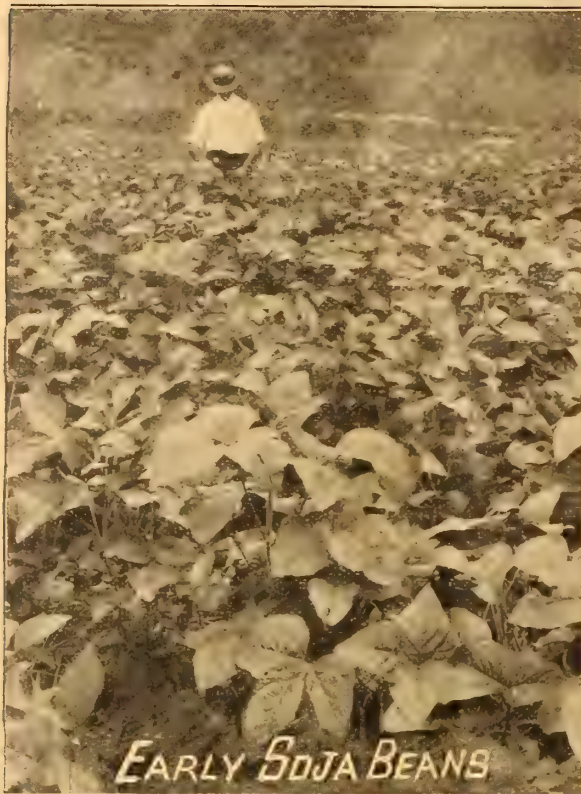


TRUE DWARF ESSEX RAPE

Indispensable for Sheep and Swine

Under favorable conditions it is ready for pasturing sheep or cattle within six weeks from time of sowing, and on an average one acre will carry twelve to fifteen sheep six weeks to two months. When on the Rape they should at all times have access to salt; but water is not necessary. There are several varieties of Rape, but care should be taken to procure the Dwarf Essex, or English, as it is sometimes called which does not seed the same season as sown, unless in some exceptional cases, as when sown too early and the young plant is touched by frost. In Northern states it should be sown from April to end of August for fall pasturing, but as it thrives best in cool weather, it should not be sown in the Southern states until September or October for winter pasture. In the latitude of New York it should be sown in April, or in July or August. Its fattening properties are probably twice as good as those of Clover, and for sheep the feeding value of Rape excels all other plants we know of. At the Michigan Experiment Station 128 lambs were pastured for eight weeks on 15 acres of Rape sown in July, and showed a gain of 2,890 lbs., or at the rate of 3 lbs. per lamb each week. Even so far south as Alabama it has proved a boon to the farmer. In a recent bulletin published by the Alabama Experiment Station they state: "Quality of product good for both hogs and cattle. The growth was enormous. By repeated sowings it will and did carry more hogs through our dry, hot summers than four times the amount of land planted in anything else ever grown here. I would recommend it to all southern farmers." To secure the best results, the Rape should be sown in drills. Sow 4 lbs. per acre broadcast, 2 to 3 lbs. per acre in drills.

Sow in the North from April to end of Aug., in the South During Sept. and Oct
Price, 30c. per lb.; \$13.00 per bushel of 50 lbs.; 100 lbs., \$25.00.



CANADA FIELD PEAS FOR FODDER AND GREEN MANURING

For the Northern States there is no crop of greater value than Field Peas. Whether for fodder, in mixture with Oats sown at the rate of 2 bushels of Peas and 1 bushel of Oats per acre, or the Peas sown alone at the rate of 3 bushels per acre for plowing under, there is no crop that we can so strongly recommend. Peas have the power of extracting nitrogen from the air, the soil from which a crop of Peas has been harvested is rich in nitrogen. There is no kind of live stock on the farm to which Peas and Oats in mixture cannot be fed with positive advantage.

The Marrowfat and Canada Field Peas, especially the white variety, are valuable for early spring sowing; being exceptionally hardy, the crop is not easily injured by late frosts. Sown alone for fodder or in combination with Oats for hay, or as a crop to plow under for green manure, they are unsurpassed. Peas can be followed by Millet or Crimson Clover.

Prices of Field Peas for Fodder and Green-Manuring. Peas, Canada White. \$2.00 per peck; \$7.00 per bushel of 60 lbs.; 10 bushel lots, \$6.90 per bushel.

COW PEAS (*Vigna Carjag*) IMPROVE WORN-OUT SOILS, AND ARE OF HIGH FEEDING VALUE

Cow Peas are more tender than Canada or Field Peas and should not be sown until Corn-planting time. Cow Peas, being of very rapid growth during the warm weather, can be sown as late as the middle of July with reasonable assurance of a profitable crop, either for harvesting or plowing under.

The early varieties are quite extensively and successfully grown for forage and soiling as far north as Massachusetts, but so far north the crop may not ripen seeds. As a soil renovator and enricher Cow Peas are very valuable, as they collect nitrogen from the air in large quantities and fix it in the soil, thus adding this expensive element of fertilizer to the land without cost, and leaving it richer and in better condition for the future crop. Cow Peas grow on all soils from the stiffest clays to porous sands, barren uplands and alluvial bottoms. The feeding value is high, whether as green forage, cured hay or silage, being especially rich in blood, bone and muscle forming material. For green-manuring clay land, the crop should be turned under green. On sandy soil, already too light, the vines should decay on the surface and then be turned under. Sow 2 bushels per acre.

Black Eye Cow Peas. A popular and productive early sort. Very much in demand. Price, \$10.00 per bushel of 60-lbs.; 10 bushel lots, \$9.90 per bushel.

New Era Cow Peas. A new, extra-early variety, earlier than the Black Eye, maturing in about 60 days, specially adapted for planting north.

Price, \$8.00 per bushel of 60 lbs.; 10-bushel lots \$7.90 per bushel.

SAND OR WINTER VETCH (*Vicia Villosa*)

It succeeds and produces good crops on poor, sandy soils, though it is much more vigorous on good land and grows to a height of 4 to 5 feet. It is perfectly hardy, remaining green all winter, and should be sown during August and September, mixed with Rye, which serves as a support for the plants, or in spring with Oats or Barley. It is the earliest crop for cutting, and a full crop can be taken off the land in time for planting spring crops. Being much hardier than Scarlet Clover, this is the forage plant to sow in the Northern States, where Scarlet Clover winter-kills, though it is equally valuable in the South. Every dairyman and

EARLY GREEN SOJA OR SOY BEANS

This early green variety has proved its earliness and value in the Northern States by not only producing large fodder crops, but ripening the seed as far north as Massachusetts. The grain is the richest known vegetable substance, and when ground and fed to cattle gives a milk richer and better than cotton seed or other meal. The American farmer can now, by the aid of the Soja or Soy Bean and Japanese Millet, grow on his own farm, at small cost, a combination which, furnishes a wholesome, economical and completely balanced feed for milch cows. This combination should be composed of two parts millet or corn to one part Soja Beans, grown separately, but mixed thoroughly, at the time of cutting and filling of the silo. We recommend that grain be fed occasionally as a change, but four-fifths of the grain bill can be saved. Planted the latter part of May, in latitude of New York, the Beans are ready for harvesting in about 100 days. Japanese Millet comes quicker to maturity than Soja Beans, and should be sown from four to five weeks later, so as to be in the best condition for the silo, along with the Soja Beans. Sow the Beans from the middle to end of May, and the Millet from last week in June till first week in July; both will then be ready for silo about the end of August.

Planted in rows $2\frac{1}{2}$ feet apart, 6 to 8 plants to the foot of row, requiring three pecks per acre, they yield 15 to 20 tons per acre of fodder very rich in flesh formers. For green feed, use from time of blossoming till pods are well filled; for the silo, cut as soon as most of the pods are well filled, and cut into $\frac{1}{2}$ -inch to $2\frac{1}{2}$ -inch lengths. The soja bean is also valuable as a soil enricher, gathering nitrogen from the air same as clover, the roots being crowded with nodules which give them this power. (See engraving.)

Price, 20c. per lb.; \$2.50 per peck; \$9.00 per bushel, 60 lbs.; 10-bushel lots, \$8.90 per bushel.

VELVET BEAN (*Mucuna Utilis*)

A rank growing leguminous vine, attaining a length of 10 to 40 feet and densely covering the ground. As a green manuring and forage crop it is of great value in the South and in tropical countries. No other forage crop makes such enormous growth in such a short time. On the sandy lands of Florida it averages 5,000 pounds of cured forage per acre, while on richer soils in Alabama the weight is often over 8,000 pounds per acre. The crop may be used as green forage, pastured or cured into hay, for which purpose it should be cut when in full flower or before the pods get large. The feeding value is high, as nutritious as Cow Peas, or Clover. Cattle and hogs thrive especially well on it. As a soil enricher the Velvet Bean crop is not surpassed. It gathers nitrogen from the atmosphere, and if the crop—or the roots and stubble—is turned under, this fertilizer with the humus added from the decayed crop, increases the fertility of the land, putting it in fine condition for the succeeding crop.

No fertilizer containing nitrogen need be used to grow Velvet Beans, but if the soil is poor an application of about 250 pounds of acid phosphate and 100 pounds of muriate of potash per acre would be beneficial. Plant the seed a few inches apart in rows 4 feet apart, requiring about 1 bushel of seed per acre. Price, \$2.50 per peck, \$9.00 bushel of 60 lbs.



stock breeder in the United States should have a field of it. It will also prove valuable for a hay crop in the South and dry Western regions, as it may be sown in the fall and will make a luxuriant growth during the fall and spring months, and will yield a heavy crop, which may be cut and stored before the droughts set in. Owing to conditions in Europe the seed of true Winter Vetch (*Vicia Villosa*) is scarce and dear. Sow 1 bushel per acre, with $\frac{1}{2}$ bushel of Oats or Barley.

Price, 35c. per lb.; \$18.75 bushel of 60 lbs.; 100 lbs., \$30.00.

MANGEL WURZEL OR STOCK BEET

Mangels are the most important of all root crops for feeding and form the best winter feed for cattle and hogs. They increase the flow of milk when fed to milch cows and yield enormous crops, as much as 50 tons having been grown on one acre. They may be grown in any part of the American continent on fairly good farm land; all that is necessary is good cultivation. The best soil for Mangels is loose, friable loam and deep plowing. Follow the plow with a subsoil plow, and the crop will more than repay the extra trouble. The grounds should be well enriched, and the seed sown in May in drills 24 inches apart in light soils, and 30 inches apart in strong, rich land; thin out the plants with a hoe to 9 inches apart in the former and 12 inches apart in the latter. 6 to 8 lbs. of seed are used per acre if sown with a drill, or double that quantity by hand. Cultivate with a horse hoe.

HENDERSON'S COLOSSAL LONG RED. This is a distinctly fine breed of this popular Mangel. The roots are smooth and regular, of the largest size and blood-red color. The quality is exceedingly nutritious, and in all respects this variety is most distinct and valuable. (See engraving.) Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; in lots of 10 lbs. and upward, \$1.40 per lb.

HENDERSON'S GIANT INTERMEDIATE. This is a variety between the Golden Tankard and Yellow Globe. It is larger than the Tankard, not such a rich golden color, but a heavier cropper. Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; in lots of 10 lbs. and upwards, \$1.40 per lb.

GOLDEN TANKARD. The roots are handsome in shape with deep orange colored skin. The flesh is bright golden-yellow, and in this respect differs from most other varieties, which cut white. Sheep have a preference for this sort over other Mangels; it is said that they will pick out every piece of Golden Tankard before touching others. It yields under the best cultivation 75 tons per acre. Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; in lots of 10 lbs. and upward, \$1.40 per lb.

LONG RED. This variety is more generally grown for agricultural purposes than any other, producing roots of large size and excellent quality. Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; in lots of 10 lbs. and upward, \$1.40 per lb.

LONG YELLOW. Differs from the Long Red only in color. Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; in lots of 10 lbs. and upward, \$1.40 per lb.

NEW HALF SUGAR MANGEL

This is distinctly a new variety of Mangel, and is the result of careful interbreeding between White Sugar Beet and Colossal Long Red Mangel. It certainly approaches nearer to a Sugar Beet than any other known variety of Mangel, and by analysis it has been shown that it is very rich in saccharine matter. Its growth is very rapid, so that it matures much more quickly than other varieties, and on that account it may be sown at a later date. The bulb is very uniform, of good shape, and has a single tap-root. When singling it may be left much more closer in the rows, than larger growing Mangels, and it will yield remarkably heavy crops.

Half Sugar Red, Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; 10 lbs., \$1.40 per lb.

Half Sugar White, Price, 50c. per $\frac{1}{4}$ lb.; \$1.50 per lb.; 10 lbs., \$1.40 per lb.

TURNIP FOR STOCK FEEDING

PURPLE-TOP WHITE GLOBE. One of the best varieties grown; thick globe-shape, white fleshed, of large size, rapid growth, fine quality and a heavy cropper. It keeps well, and is unequaled for stock-feeding. Price, 70c. per $\frac{1}{4}$ lb.; \$2.50 per lb.

LONG WHITE OR COW HORN. Matures very quickly; root shaped like a Carrot, about half of which is formed above ground; flesh white, fine-grained and sweet, and of excellent quality. Price, 70c. per $\frac{1}{4}$ lb.; \$2.50 per lb.

WOOD'S GREEN TOP YELLOW (New). The best variety for winter use; the flesh is yellow, extremely hard, solid and brittle and is highly esteemed by cattle; the shape which is free from neck enables it to be trimmed without waste. (Crop failed.)

YELLOW GLOBE. One of the best varieties for general crop; flesh, yellow, very firm and sweet, and keeps well until late in the spring; grows to a large size, and is excellent both for stock or table use. Price, 70c. per $\frac{1}{4}$ lb.; \$2.50 per lb.

YELLOW ABERDEEN. Very hardy and productive, good keeper; globe-shaped; pale yellow, with purple top. Very firm in texture, yellow fleshed, closely resembling the Ruta Bagas in keeping qualities; good for stock. Price, 70c. per $\frac{1}{4}$ lb.; \$2.50 per lb.

FIELD CARROT FOR STOCK FEEDING

LONG ORANGE IMPROVED.—Of large size, fair specimens averaging 12 inches in length, with a diameter of 3 inches at the top. Color, orange-red. Fed to milch cows it imparts to the butter a delicious flavor and rich golden color. Price, 25c. per oz.; 75c. per $\frac{1}{4}$ lb.; \$2.50 per lb.

DANVERS.—A handsome cylindrical-shaped Carrot of good size and stump-rooted. Under the best cultivation it has yielded from 25 to 30 tons per acre. Price, 25c. per oz.; 75c. per $\frac{1}{4}$ lb.; \$2.50 per lb.

WHITE VOSGES.—The heaviest-cropping field Carrot, producing thick, shapely Carrots, which are easily harvested. They are used for stock feeding. They grow clean and free from side roots. Price, 20c. per oz.; 60c. per $\frac{1}{4}$ lb.; \$2.00 per lb.

LARGE WHITE BELGIAN.—Exclusively grown for stock. Price, 20c. per oz.; 60c. per $\frac{1}{4}$ lb.; \$2.00 per lb.

LARGE YELLOW BELGIAN.—Similar to above except in color. Price, 20c. per oz.; 60c. per $\frac{1}{4}$ lb.; \$2.00 per lb.

FERTILIZERS

Raw Bone Meal. This is ground medium fine, decomposes more rapidly in the soil than the coarser grades, and is therefore more quickly beneficial. Use $\frac{1}{2}$ to 1 ton per acre broadcasted and harrowed in.

Price, 100-lb. bag, \$4.50.

Blood and Bone. A very high grade fertilizer and superior for immediate as well as for prolonged results; it is of exceptional value for garden crops, root crops, corn, grain, grasses, fruit trees, small fruits, grape vines, and in fact, all vegetation. Use for field crops $\frac{1}{2}$ to 1 ton per acre; garden crops 300 to 500 lbs. per acre. Price per 100-lb. bag, \$4.50.

Pure Animal Manures. Convenient, compact, high-grade natural manures dried and ground or pulverized, very nutritious, immediate and lasting in effect. They make rich Liquid Manures.

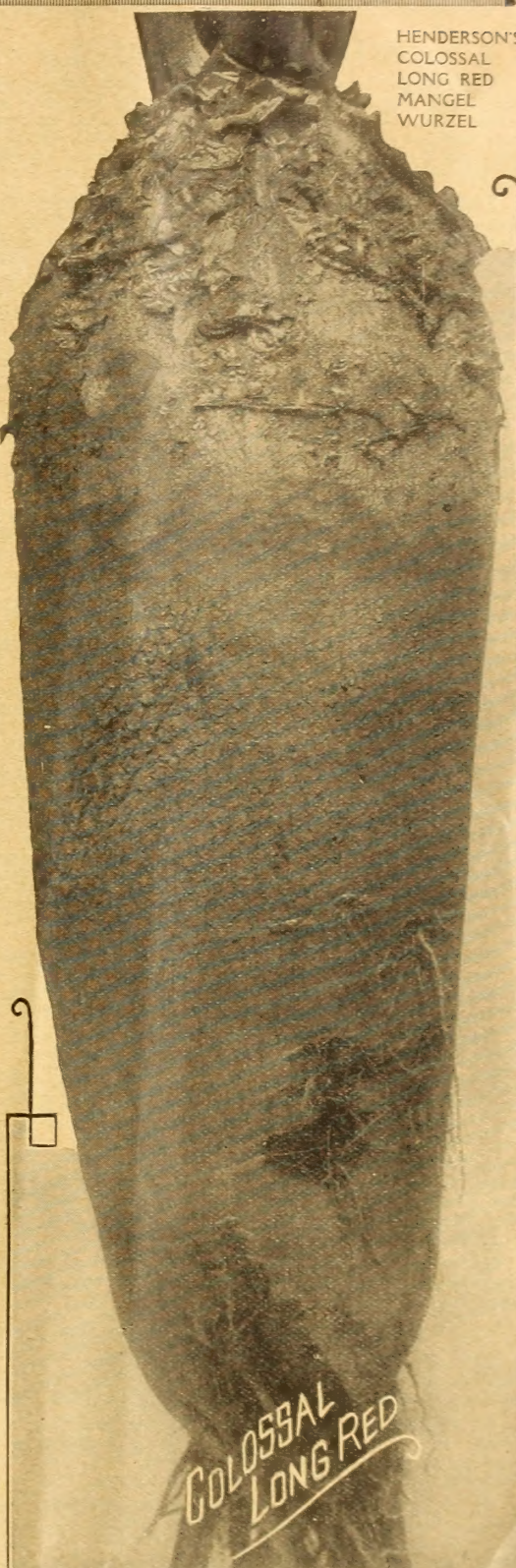
Sheep Manure Pulverized. Price, 100-lb. bag, \$3.50.

Horse Manure Dried. Price, per 100-lb. bag, \$3.00.

Cattle Manure, Dried. Price, per 100-lb. bag, \$2.75.

Canada Hard Wood Ashes. Drive away insects and improve the texture of the soil; indispensable for all crops requiring potash; very beneficial for garden and field crops, grass lands and lawns. Apply 1 to 2 tons per acre. Price, 100-lb. bag, \$2.00; per bbl. of about 200 lbs., \$3.50.

HENDERSON'S
COLOSSAL
LONG RED
MANGEL
WURZEL



RUTA BAGA RUSSIAN OR SWEDISH TURNIP

These grow very rapidly, and yield from twenty-five to thirty-five tons per acre, in good, rich, deep soil, with proper cultivation. The Ruta Bagas proper should be sown in this latitude from May 25th to June 25th; while the smaller-growing Turnips can be sown from July 1st to the middle of August. Sow 2 to 3 lbs. per acre.

LONG ISLAND IMPROVED PURPLE-TOP. This is undoubtedly the finest variety of purple-top Ruta Baga, and originated with one of our Long Island growers. It is twice the size of ordinary American stocks, and although size is usually got at the expense of quality, the quality is superior to any that we have tested. It is perfectly hardy. In a fair test on several Long Island farms, along-side some of the best European and American varieties, it produced almost twice the weight per acre of any other variety. As a winter food for live stock the Ruta Baga has a wide range of adaptation, and is found at its best where the weather is moist and cool. (See engraving.) Price, \$2.50 per lb.

IMPROVED AMERICAN (PURPLE-TOP). An old leading variety; very hardy and productive; flesh yellow, solid, sweet and fine-flavored; equally good for stock or table use. Price, \$2.50 per lb.

LARGE WHITE FRENCH. Flesh firm, white and solid; attains a large size, and has a very rich and sweet flavor; a very popular variety. Price, \$2.50 per lb.

HENDERSON'S SEED POTATOES

NORTHERN GROWN ESPECIALLY FOR SEEDING

Prices of potatoes are subject to change without notice

(1 peck will plant about 125 hills; 10 to 12 bushels per acre, in drills 3 feet apart.) Purchaser pays freight or express charges and assumes risk from freezing or heating. The sack is 165 lbs. net weight.

EARLY VARIETIES *Government Inspected.*

Henderson's BOVEE POTATO. The popular extra-early. Delicious, appetizing new potatoes can be produced earlier with BOVEE than any other. It is not only early, but produces its crop in great abundance, and yields a very large percentage of perfectly formed tubers. The cultivator can be used to better advantage on a crop of Bovee than any other sort, owing to the short and compact growth of the vines, and its habit of setting the entire crop close in the hill.

Price, \$1.60 peck, \$5.75 bushel, \$11.50 sack.

Irish Cobbler Potato. A fine, early variety, producing large handsome tubers, uniform in shape and size. The flesh is white, and of excellent quality; the skin very light brown, with whitish netting. It is a heavy cropper. Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.

Early Ohio. Very early, almost round; flesh solid; cooks dry and mealy. Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.

Early Norther. A splendid, extra early; earlier than Early Rose, which it resembles, and exceedingly prolific; eyes few and shallow; unexcelled cooking qualities, dry and floury.

Price, \$1.50 peck, \$5.00 bushel, \$10.00 sack.

Early Puritan, Henderson's. A valuable early sort, which produces a heavy crop of roundish-oval tubers of good average size. Both flesh and skin are white. The plant is strong and resists disease well. The flesh is of fine texture, and when cooked is dry, floury and full-flavored.

Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.

Early Rose. The popular standard early; noted for earliness, productiveness and fine quality. Price, \$1.50 peck, \$5.00 bushel, \$10.00 sack.

MAIN CROP VARIETIES *Government Inspected.*

Late Puritan, Henderson's. A handsome, large, white-skinned Potato, one of the best late varieties grown, heavy yielder, good keeper; cooking qualities superior. Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.

Sir Walter Raleigh, Henderson's. A grand, main crop Potato; shape very uniform, large and oval; flesh fine grained, snow-white, cooking dry and floury, splendid keeper.

Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.

Uncle Sam Potato. Uncle Sam is a particularly fine Potato with phenomenal cropping qualities. On a loam or sandy soil it is a wonder in yield and quality. Its superb quality when served satisfies the most fastidious and its handsome appearance and perfect form always ensure a fancy price on the market. Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.

Improved Green Mountain Potato. A reliable medium late Potato which is rapidly increasing in popularity—in fact, in some sections it has superseded all other main crop varieties. It seems to thrive in all soils and in all localities, making heavy, healthy vines, and yielding big crops of large, smooth, white skinned tubers of handsome flattish oval form. It cooks white, dry and mealy, and has a desirable flavor exclusively its own. It keeps well, and is not liable to scab or decay.

Price, \$1.50 peck, \$5.25 bushel, \$10.50 sack.



MISCELLANEOUS AGRICULTURAL SEEDS

ARTICHOKES, JERUSALEM. Strong tubers. A hardy perennial, forming roots like a Potato, making excellent feed for stock, especially for hogs. 25c. quart, \$1.50 peck, \$5.00 bushel.

AUSTRIAN SALT BUSH. (*Atriplex semibaccatum*.) A valuable forage plant highly recommended for growing on alkali soils and in sections subject to protracted droughts. Experiments have proven that it will grow on soils where nothing else will grow. It is nutritious and readily eaten by all kinds of live stock. One pound of seed is sufficient for an acre. The best plan is to sow the seed in well-prepared garden soil and plant out the seedlings when two or three inches high, six or eight feet apart. 15c oz. \$1.25 lb., 10-lb. lots, \$1.15 lb.

WHITE MARROW or NAVY BEAN. The variety so extensively grown for sale in the dry state. Price on application.

BOSTON SMALL PEA BEAN. A desirable variety to grow, being early, hardy and prolific. Price on application.

BEGGAR WEED. (*Desmodium tortuosum*.) A leguminous annual plant growing according to soils and conditions, 3 to 7 feet high. It is esteemed in our Southern states as a forage and soil renovating crop, particularly on light, sandy land. Where sown early it yields two crops of hay in a season, and often in land too poor to grow any other crop it has produced 3 to 5 tons of cured hay per acre. It is relished by stock, and is highly nutritious, comparing favorably with that of Red Clover and Cow Peas. If cut when 2 feet high, the plants again stool out producing successive crops. It is an excellent crop to turn under as green manure. Sow broadcast 10 to 12 lbs. per acre. Price, 20c. ¼ lb.; 75c. lb.

FLAX SEED. Price variable.

SPRING VETCHES, or TARES. (*Vicia sativa*.) A species of the Pea, grown for stock, and often mixed with Oats for soiling. Sown broadcast at the rate of two to three bushels per acre. 15c. lb., \$8.00 bushel of 60 lbs., 10-bushel lots, \$7.90 bushel. For Sand or Winter Vetch see page 14.

SAINFOIN (*Onobrychis sativa*.) An excellent fodder plant, particularly for light, dry, sandy, gravelly, limestone or chalky soils. Price on application.

FIELD LUPINS. May be sown from April to July, and succeed well on the poorest soil; are particularly valuable for plowing under on poor, sandy soils. Price on application.

SUNFLOWER, MAMMOTH RUSSIAN. Highly valued as an excellent and cheap food for fowl. It is the best Egg-Producing Food known. It can be raised cheaper than Corn. Four quarts of seed will plant one acre. 20c. lb., \$18.00 per 100 lbs.

WILD RICE (*Zizania aquatica*.) An attraction for wild fowl, and as seed is not successful we recommend that plants be set out in spring in shallow water having a mud bottom. Seedling plants mailed in May at \$1.00 per doz.; \$7.00 per 100.

TOBACCO

Primus. The earliest of all; succeeds well even as far north as Canada. Pkt., 10c.; oz., 25c.; ¼ lb., 80c.

Zimmer's Spanish. The earliest and best American-Spanish, and a favorite cigar variety, increasing in demand and culture every year. Pkt., 10c.; oz. 30c.; ¼ lb., \$1.00.

Havana, Imported. Pkt., 10c.; oz., 60c.; ¼ lb., \$2.00.

Havana, Domestic. Pkt., 10c.; oz., 30c.; ¼ lb., \$1.00.

Sumatra, Domestic. Pkt., 10c.; oz., 60c.; ¼ lb., \$2.00.

Connecticut. Pkt., 10c.; oz., 25c.; ¼ lb., 80c.

Kentucky. Pkt., 10c.; oz., 25c.; ¼ lb., 80c.

Virginia. Pkt., 10c.; oz., 25c.; ¼ lb., 80c.

HENDERSON'S FARMERS' MANUAL 1919

INDEX AND QUANTITIES TO SOW PER ACRE

Purchaser pays transportation on farm seeds. If small quantities are wanted by mail see zone rates on page 2 of cover and add to order.

	Page	Sow (if alone) per Acre		Page	Sow (if alone) per Acre
Agrostis canina—See R. I. Bent.....	3	3 bushels.	Lespedeza striata—See Japan Clover.....	7	14 lbs.
" stolonifera—See Creeping Bent.....	3	2 bushels.	Lolium italicum—See Italian Rye Grass.....	5	3 bushels.
" vulgaris—Red Top Fancy.....	5	1 bushel.	perenne—See English Rye Grass.....	5	2 1/2 to 3 bushels.
Alfalfa.....	6	30 to 40 lbs.	Lucerne—See Alfalfa.....	6	30 to 40 lbs.
Alopecurus pratensis—See Meadow Foxtail.....	4	3 to 4 bushels.	Lupins.....	16	2 to 3 bushels.
Alsike, Hybrid or Swedish Clover.....	7	8 lbs.			
Andropogon sorghum var.—See Kaffir Corn.....	10	8 to 10 lbs.	Mammoth or Pea Vine Clover.....	7	12 lbs.
Anthoxanthum odoratum, See Sweet Vernal, peren	5	3 1/2 bushels.	Mangels.....	15	6 to 8 lbs.
Arrhenatherum avenaceum—See Tall Meadow Oat	5	4 to 5 bushels.	Meadow Fescue.....	4	2 1/2 bushels.
Grass.....	5	8 to 10 bushels.	Foxtail.....	4	3 to 4 bushels.
Artichokes.....	16	1 lb.	Medicago sativa—See Alfalfa.....	7	30 to 40 lbs.
Australian Salt Bush.....	16	4 to 5 bushels.	Melilotus alba—See Bokhara Clover.....	6	10 lbs.
Avena elatior—See Tall Meadow Oat Grass.....	5	20 to 25 lbs.	Millet, Golden German and Hungarian.....	13	1 bushel.
Awnless Brome Grass.....	6	1 1/2 to 2 bu. drilled.	" Japanese (in drills, 10 lbs. per acre).....	13	Broadcast, 15 lbs.
Barley (Sow broadcast, 2 to 2 1/2 bushels).....	13	1 bushel drilled.	" Pearl, Egyptian, Cat-Tail or Horse Millet.....	13	Drills, 5 to 6 lbs.
Beans, Field.....	14	1 bushel drilled.	Millo Maize—See Douras.....	10	Broadcast, 8 lbs.
" Soja.....	14	1 bushel.	Mucuna utilis—See Velvet Bean.....	14	4 to 5 lbs.
" Velvet.....	14	6 to 8 lbs.			2 bushels.
Beet, Sugar.....	15	10 to 12 lbs.	New Zealand Fescue.....		
Beggar Weed.....	16	6 lbs.	Oats.....	11	3 bushels.
Bent Grass.....	3	10 lbs.	Onobrychis sativa—See Sainfoin.....	16	3 to 4 bushels.
Bermuda Grass.....	6	2 to 4 lbs.	Orchard Grass.....	5	3 to 4 bushels.
Bokhara Clover.....	7	20 to 25 lbs.			
Brassica Napus—See Rape.....	13	8 to 10 lbs.	Panicum crus-galli—See Japanese Millet.....	13	15 lbs.
Bromus inermis—See Awnless Brome Grass.....	6	1 bushel.	Pea Vine Clover—See Mammoth Clover.....	7	12 lbs.
Broom Corn.....	10	3 bushels.	Peas, Cow.....	14	2 bushels.
Buckwheat.....	10	4 lbs.	" Field.....	14	3 bushels.
Canada Blue Grass.....	3	1 bushel.	Pennisetum spicatum—See Pearl Millet.....	13	8 lbs.
Carrots.....	15	3 bushels.	Perennial Red Clover—See Mammoth Clover.....	7	12 lbs.
Chaetochloa italica—See Golden Millet.....	13	4 lbs.	Phleum pratense—See Timothy.....	5	1/2 to 1 bushel.
Clovers.....	7	1 bushel.	Poa compressa—See Canada Blue Grass.....	3	3 bushels.
Cockfoot.....	5	8 to 10 qts.	" nemoralis—See Wood Meadow Grass.....	5	2 bushels.
Corn, Dent.....	9	8 to 10 qts.	" pratensis—See Kentucky Blue.....	4	3 bushels.
" Flint.....	9	Broadcast, 2 bu.	" trivialis—See Rough Stalked Meadow Grass.....	5	1 1/2 bushels.
" Fodder.....	10	Drilled, 1 bu.	Potatoes.....	16	12 to 14 bushels.
" Pop.....	9	4 lbs.			
Cow Grass—See Mammoth Red Clover.....	7	12 lbs.	Rape, English.....	13	2 to 4 lbs.
Cow Peas.....	14	2 bushels.	Reana luxurians—See Teosinte.....	10	6 to 8 lbs.
Creeping Bent or Fiorin.....	3	2 bushels.	Red Clover (Common or June Clover).....	7	12 lbs.
Crested Dog's Tail.....	3	1 1/2 bushels.	Red or Creeping Fescue.....	4	2 1/2 bushels.
Crimson or Carnation Clover—See Scarlet Clover	7	15 lbs.	Red Top Fancy (Herd's Grass of the South).....	5	1 bushel.
Cynodon dactylon—See Bermuda Grass.....	6	6 lbs.	Rhode Island Bent.....	3	3 bushels.
Cynosurus cristatus—See Crested Dog's Tail.....	3	1 1/2 bushels.	Root Crops.....	15-16	
			Rough Stalked Meadow Grass.....	5	1 1/2 bushels.
Dactylis glomerata—See Orchard Grass.....	5	3 to 4 bushels.	Ruta Baga.....	16	2 to 3 lbs.
Desmodium tortuosum.....	16	10 to 12 lbs.	Rye.....	12	1 1/2 bushels.
Douras or Durra.....	10	4 to 5 lbs.			
English Blue Grass—See Meadow Fescue.....	4	2 1/2 bushels.	Sainfoin.....	16	3 to 4 bushels.
" or Perennial Rye Grass.....	5	2 1/2 to 3 bushels.	Scarlet Clover.....	7	15 lbs.
Fertilizers.....	15		Sheep's Fescue.....	4	2 1/2 bushels.
Fescue, Chewings.....	4		Smooth Stalked Meadow Grass—See Kentucky Blue	4	3 bushels.
Festuca duriuscula—See Hard Fescue.....	4	2 1/2 bushels.	Soja Bean or Soy Bean.....	14	3/4 bushel.
" elatior—See Tall Meadow Fescue.....	4	2 1/2 bushels.	Sorghums.....	10	8 to 10 lbs.
" heterophylla—See Various Leaved Fescue	4	3 bushels.	Sorghum Halapense—See Johnson Grass.....	6	1 bushel.
" ovina—See Sheep's Fescue.....	4	2 1/2 bushels.	Sudan Grass.....	6	12 to 20 lbs.
" tenuifolia—See Fine Leaved Sheep's	4	3 bushels.	Sugar Beet.....	29	6 to 8 lbs.
Fescue.....	4	2 1/2 bushels.	Sugar Cane.....	10	8 to 10 lbs.
" pratensis—See Meadow Fescue.....	4	2 1/2 bushels.	Sunflower.....	16	4 qts.
" rubra—See Red Fescue.....	4	2 1/2 bushels.	Swedish Clover—See Alsike.....	7	8 lbs.
Fine Leaved Sheep's Fescue.....	4	3 bushels.	Sweet Clover—See Bokhara Clover.....	7	10 lbs.
Fiorin—See Creeping Bent.....	3	2 bushels.	Sweet Vernal—true perennial.....	5	3 1/2 bushels.
Flax Seed.....	16	1/2 to 3/4 bushel.			
Garawi Grass.....	6	1/4 bushel.	Tall Meadow Fescue.....	4	2 1/2 bushels.
Glycine hispida—See Soja Bean.....	14		" Oat Grass.....	5	4 to 5 bushels.
Grasses, for the South.....	6		Tares.....	16	2 bushels.
" Hay and Permanent Pasture.....	1	3 bushels.	Teosinte.....	10	6 to 8 lbs.
" Permanent Hay Mixtures.....	2	3 bushels.	Timothy or Herd's Grass of the North.....	5	1/2 to 1 bushel.
" Permanent Pasture Mixtures.....	1	3 bushels.	Tobacco.....	16	
" Clover, for above.....	2	10 lbs.	Trifolium hybridum—See Alsike Clover.....	7	8 lbs.
" Renovating Mixture.....	2	1 bushel.	" incarnatum—See Scarlet Clover.....	7	15 lbs.
" various.....	3-6	3 bushels.	" pratense—See Red Clover.....	7	12 to 14 lbs.
" Woodland Pastures.....	2	3 bushels.	" perenne—See Mammoth Clover	7	12 lbs.
Hard Fescue.....	4	2 1/2 bushels.	" repens—See White Clover.....	7	2 to 3 lbs.
Herd's Grass of the South—See Red Top	5	3 bushels.	Turnips.....	15	2 to 3 lbs.
" " North—See Timothy.....	5	1/2 to 1 bushel.	" Ruta Baga, Russian or Swedish.....	16	8 lbs.
Hungarian Grass—See Hungarian Millet.....	13	1 bushel.			
Italian Rye Grass.....	5	3 bushels.	Various Leaved Fescue.....	4	3 bushels.
Japan Clover.....	7	14 lbs.	Vetch, Sand, Winter or Hairy.....	14	1 bushel.
Jerusalem Corn.....	10	5 lbs.	" Spring (Tares).....	16	2 bushels.
Johnson Grass.....	6	1 bushel.	Vicia sativa.....	16	2 bushels.
June Clover—See Red Clover.....	7	12 to 14 lbs.	Vicia villosa.....	14	1 bushel.
" Grass—See Kentucky Blue.....	4	3 bushels.	Vigna catjang—See Cow Peas.....	14	2 bushels.
Kaffir Corn.....	10	8 to 10 lbs.			
Kentucky Blue Grass.....	4	3 bushels.	Wheat.....	12	1 1/2 bushels.
			White or Dutch Clover.....	7	8 lbs.
			Wild Rice.....	16	
			Wood Meadow Grass.....	5	2 bushels.
			Zizania aquatica—See Wild Rice.....	16	

A FULL LINE OF FARM IMPLEMENTS, TOOLS, ETC. WILL BE FOUND IN OUR MANUAL OF "EVERYTHING FOR THE GARDEN" FOR 1919, PAGES 152 TO 179.

• HENDERSONS •

*Clydesdale
Oats*

*Breed
will tell
in
Seeds*



*As well
as in
Animals*

PROGRESSIVE PLANTERS PRAISE

Henderson's Clydesdale Oats

"Last spring I bought fifteen bushels of Henderson's Clydesdale Oats for seed. I had an excellent crop for my own use and have one hundred bushels for sale."

J. C. TALBUT, Mount Vision, N. Y.

"Two years ago I bought some Henderson's Clydesdale Oats, and again last year, and was greatly pleased with them. Last year from seed secured from what we bought of you the year before, we raised 63 bushels to the acre, although the season was very dry and unfavorable."

EDWARD B. FRITZ, Marshall, Mich.

"In the spring of 1915 I purchased of you a number of bushels of Henderson's Clydesdale Oats. They proved to be wonderful oats; and last spring I sowed from the same seed. These oats are truly worth their name."

SEE PAGE 11

"My Clydesdale Oats were the grandest oats I have seen in all my life."

JAMES WILLIS, Farrington, Va.

"I purchased from you last spring, 15 bushels Clydesdale Oats which I put on 4 1/2 acres and got 430 bushels of beautiful oats."

CYRUS REIMER, 701 Sweetland Bldg., Cleveland, Ohio.

"The Clydesdale Oats I bought of you made a wonderful showing. I planted 20 acres with your seed and 20 acres with the best seed I could buy in Richmond. There is absolutely no comparison between the two. The field from your Oats is the prettiest sight on the farm. They have grown higher and faster than anything we have been used to."

F. H. NILES, Rock Castle, Va.

"I am very much pleased with Henderson's Clydesdale Oats. I purchased 1 bushel and threshed 55 bushels machine measure."

H. B. ADAMS, Wellsville, N. Y.

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